# CHANGES IN U.S. PATENT LAW AND THEIR IMPLICATIONS FOR ENERGY AND ENVIRONMENT RESEARCH AND DEVELOPMENT

Y 4. SCI 2: 104/58

Changes in U.S. Patent Law and Thei...

## HEARING

BEFORE THE

SUBCOMMITTEE ON ENERGY AND ENVIRONMENT

OF THE

COMMITTEE ON SCIENCE

U.S. HOUSE OF REPRESENTATIVES

ONE HUNDRED FOURTH CONGRESS

SECOND SESSION

MAY 2, 1996

**[No. 58]**

Printed for the use of the Committee on Science

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Superintendent of Documents, Congressional Sales Office, Washington, DC 20402
ISBN 0-16-053617-0

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# CHANGES IN U.S. PATENT LAW AND THEIR IMPLICATIONS FOR ENERGY AND ENVIRONMENT RESEARCH AND DEVELOPMENT

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**WEDNESDAY, MAY 2, 1996**

U.S. HOUSE OF REPRESENTATIVES,
COMMITTEE ON SCIENCE,
SUBCOMMITTEE ON ENERGY AND ENVIRONMENT,
*Washington, DC.*

The Subcommittee convened at 10:10 a.m. in Room 2318 of the Rayburn House Office Building, the Honorable Dana Rohrabacher, Chairman of the Subcommittee, presiding.

Present. Representatives Rohrabacher, Roemer, Rivers, Davis, Foley, Ehlers, Jackson Lee, Brown and [Menendez].

Chairman ROHRABACHER. This hearing of the Energy and Environment Subcommittee will come to order.

Today we are going to look at the recent changes and proposed changes in U.S. patent law and their effect on the future of energy and environmental research and the development of said research in this country.

The ability of individuals to secure their intellectual property rights is fundamental to Americans, just as is securing their political, personal and property rights. That is why our Founding Fathers included patent protection in our Constitution. Ben Franklin, Thomas Jefferson and so many others of our Founding Fathers were after technologists as well as believers in human liberty.

For most of the time since the Constitution was ratified U.S. inventors and investors were protected by a guaranteed patent term of 17 years from time of issue. Last year 134 years of patent law was thrown out as a result of the GATT implementation legislation, although GATT itself required no change in the patent law. We now have an uncertain patent term, and that is an uncertain term that starts from 20 years from filing.

By this misuse of GATT, and Mr. Lehman will be refuting a lot of the things that I say here, or will be attempting to, and I will welcome his testimony, but by what I believe is a misuse of the GATT fast track process, a change of vital importance to our nation was enacted into law without so much as an up or down vote by Congress in that specific issue.

We now have a patent law that I believe reduces the rights of certain individual Americans and in the long run threatens our nation's competitiveness and our prosperity. The United States has always had the strongest patent system in the world and is now the world's leading producer of innovative breakthrough ideas and

technology. That's why we have a $20 billion balance of payments surplus in royalties and licensing fees.

The primary beneficiaries of this change that was made in the patent law I believe are large, foreign and multinational corporations. They are the users, not the creators of intellectual property. Let us remember that Japan has pressed us for years to conform to their laws, which is what the change brought about in the GATT legislation accomplishes.

Following this change the U.S. Patent Office made another agreement with the Japanese Patent Office. This will mean that the United States must change our law again, this time to require U.S. patent applications to be published after 18 months, whether or not the patent has been issued.

Well, it doesn't take a rocket scientist to know that this is an open invitation for the theft of America's most creative ideas, the theft of America's ideas about technology, the theft of America's ideas that would innovate our own business structures and make us more competitive.

These two changes combined, both eliminating the patent term certain of 17 years and combining that with publication of patent applications even before they are issued, I believe spells disaster for this country.

At this hearing we will look at the implications of these changes and what they have for the future of U.S. research and development, especially in the areas of energy and the environment.

As we have heard in the past, the Department of Energy, through its technology transfer programs with the labs, has become increasingly involved in the patent process. The Morella bill recently signed into law is designed to make it easier for inventors at government facilities to patent their work.

Environment Protection Agency's new technology initiative also underscores the importance of patent law changes to future research and development in the environmental area.

To explore these issues we have with us the Commissioner of Patents and Trademarks, and the Entrepreneur in Residence at the Small Business Administration who hold very different views on this issue.

Later we will hear from people in business who are directly involved in the patent process.

Before I introduce this first panel, I will recognize my colleague from Indiana, the distinguished Ranking Minority Member, and I appreciate him being here with us today, Mr. Roemer, for his opening remarks.

Mr. ROEMER. Thank you, Mr. Chairman.

I also want to recognize Mr. Menendez from the State of New Jersey, who I know you will probably graciously recognize to make an opening statement as well, too.

Mr. Chairman, I want to take just a brief moment to commend you and congratulate you for your hard work on this issue. You have called and you have talked to and you have spent a consider amount of your time over the course of several months, if not years, working on this issue, and I know this is very important to you and your constituents and your interests in the health and the viability

of this country. So I want to congratulate you for having this hearing.

This issue is of considerable importance to the scientific community as well as large and small U.S. businesses. Unquestionably, our patent system has allowed our nation to be a leader in scientific and technological enterprises, such as telecommunications, supercomputers and biotechnology.

Regardless of our position on the implementing legislation accompanying the general agreement on trade and tariffs, we should be mindful of how changes to our patent policy will affect fairness and competitiveness.

The public has a compelling interest in maintaining and protecting an inventor's intellectual property right with respect to patents, copyrights, trademarks as well as trade secrets.

By appropriately rewarding inventors we will ensure that they will continue to have the incentive and available resources they need to create new inventions and bring them into the marketplace.

Mr. Chairman, we have an obligation to reward those whose intelligence and skillful application of imagination and innovation provide new, useful and breakthrough products. These inventors represent the backbone of our nation's economic strength.

Providing inventors the right to profit from their creations is an incentive that generates the development of other useful products and will encourage the advancement of new drugs, new technologies and new life-saving devices. We need to ensure that changes to the patent system are formulated within a constitutional framework and do not adversely affect fairness and competitiveness.

I agree with Chairman Rohrabacher that changes to patent law should only be made where there is a well-defined problem to cure and where the remedies selected cure the problem without dampening the inventive spirit. More important, such changes should not detract from private research and development or our technology transfer efforts from the federal laboratories.

Our distinguished panel of witnesses will address the impact of the changes to U.S. patent policy which took effect last year as a result of the GATT implementing legislation and how these changes affect future energy and environmental technology development by small entity inventors. We will also focus on how such changes would affect our efforts to gain a larger share of energy and environmental technology markets.

Again, Mr. Chairman, I want to commend and thank you for your hard work and leadership in addressing this important issue. I look forward to working with you and with other Members of the House of Representatives as we continue to deliberate U.S. patent policy.

Chairman ROHRABACHER. Mr. Menendez, would you like to have an opening statement?

Mr. MENENDEZ. Thank you, Mr. Chairman. Good morning to you and to the Ranking Member.

I am grateful for the opportunity to join with the Subcommittee, of which I am not a Member, as you hear testimony from a variety of groups regarding the impact of changes in U.S. patent policy, in

some respects brought about by the Uruguay Round Agreements Act.

If I could, Mr. Chairman, I would ask unanimous consent to include an extension of remarks.

Chairman ROHRABACHER. Without objection.

Mr. MENENDEZ. Thank you. As you know, U.S. law governing patent rights was changed to conform to the requirements of the TRIPS agreement, and while TRIPS represents a major advance in the worldwide protection of intellectual property, it has substantive deficiencies.

Our trading partners have addressed the general question of TRIPS conformity, but some it seems failed to enforce the requisite changes in their own domestic laws and regulations. The adverse implications for U.S. patent holders of these failures to conform to TRIPS are significant in terms of lost profits and lost jobs, and the ones hurt the most are small businesses.

Such is the case with a constituent of mine, Mr. Chairman, who will address you today, Mr. Salvatore Monte. As Mr. Monte will tell you, he has documented violations by Japan of trademark territory and patent flooding costing him millions of dollars. Yet he has been unable to recoup any of his losses from Japan.

And why is this? Japan's use of narrow patent interpretations and patent flooding to gain competitiveness has long been recognized. It seems strange that a modern, industrialized nation like Japan has only four patent examiners. Yet WTO/GATT does not explicitly deal with the techniques employed by Japan, and perhaps this is where our patent policy hasn't changed enough.

We must find a way to enable the WTO to live up to its billing as the guarantor of open markets and fair treatment. We must be aggressive in using the WTO for enforcement and dispute settlement procedures.

America's competitive edge rests ultimately on its creativity and resourcefulness such as found in the small businesses like Mr. Monte's.

Mr. Monte's testimony I think will be very insightful for the Committee, Mr. Chairman, and I appreciate the courtesy that both you and the Ranking Member have extended to me.

[The prepared statement of Mr. Menendez follows:]

REMARKS BY THE HON. ROBERT MENENDEZ

ON

INTERNATIONAL TRADE AND PATENT AND ROYALTY ENFORCEMENT

In the din of the battle over balancing the budget, reality can be lost in the shouting. If one accepts as an article of faith that it is of utmost importance that the federal budget must be balanced, then it must follow that the monumental trade deficits must per force of the exact same logic have the same priority.

Upholding the standard of free markets and free trade is not license to do nothing. The price of freedom is not without cost for either personal liberties or economic freedom. It is a Constitutional right under the First Amendment that our citizens may petition the Government for redress of grievances. It is also a Constitutional prerogative under Article 1, Section 8, Clause 8 "To promote the progress of science and useful arts, by securing for limited times to authors and inventors, the exclusive right of their respective writings and discoveries." With this as a backdrop, I would like to explore a problem that a constituent of mine, Salvatore Monte has raised. Mr. Monte's problems involve fundamental questions about the role of our federal

government in protecting the Constitutional rights of our citizens in the context of international trade.

Sal Monte is the president of Kenrich Petrochemical Incorporated, a family owned business founded after World War II and operating in Bayonne, NJ since 1961. Sal Monte is an inventor in the proud New Jersey tradition of Thomas Edison and holds numerous patents. Mr. Monte's firm makes organo-metallic compounds. Organo-metallic compounds act as the molecular glue between organic and inorganic materials in the fabrication of complex substances. These chemical compounds are used in everything from rocket fuels, to ammunition, to tires, to cars, to multilayered printed circuit boards, to photocopiers. Mr. Monte's invention is responsible for the durability of videotape and audio tape used in our homes. Some of these chemicals make products biodegradable, others increase electrical conductivity, still others make steel more anticorrosive, plastics stronger, and tires safer. Toy manufacturers use them because they make thermoplastic processing significantly more energy efficient. There is even a national security concern, since Mr. Monte's chemicals are used to increase the effectiveness and safe handling by our armed forces personnel of new generation insensitive ammunition designed to prevent unplanned detonation in Army tanks and aboard Navy ships.

Shortly after his products were introduced in the U.S. market in 1974, Mr. Monte was approached by officials of Ajinomoto Co. (AJICO) through a trading company named Nitto Shoji, LTD., about licensing his products in Japan. They signed a distributorship agreement on July 30, 1976 to import 46 different patented organometallics manufactured by Kenrich in the U.S.A. Nitto Shoji claimed that it was imperative that the products be approved as environmentally safe, and had started the process for the environmental approval of the first Kenrich product to be sold in Japan, Ken-React KR TTS, on July 1, 1976. The KR TTS approval cost Kenrich $125,000. In accordance with the usual Japanese trade position, Ajinomoto officials impressed upon Mr. Monte the need to have a Japanese manufacturing partner to facilitate the environmental approvals, comply with extraordinarily difficult Japanese quality standards, and gain acceptance by Japanese keiretsu, industrial consumers of the product. Ajinomoto is a $20 plus billion food processing and fine chemical firm most noted in southeast Asia as the number one producer of MSG (monosodium glutamate). As a result, on January 28, 1980, 15 Kenrich chemicals were licensed for manufacture by the Ajinomoto Co. for exclusive sale in Japan, Taiwan, and South Korea.

For the next eight years, the Montes were given polite and respectful treatment. By 1984, they had transferred all of Kenrich's technology to Japanese licensing interests. Mr. Monte began to suspect that Ajinomoto was selling vast quantities of the Kenrich licensed product and under reporting sales to avoid paying royalties. Mr. Monte repeatedly requested sales reports, but only received a carefully contrived semi-annual report which diminished in detail with each passing year. There are now over 900 patent applications issued to Japanese companies using the Kenrich products—almost 40 to Canon alone for copier toner, yet the sales are supposedly still under $1,000,000—even though the yen has doubled in value against the dollar during the contract period. After two decades of doing business in Japan, Kenrich is still receiving only a contract minimum of $50,000 a year in royalties.

The coordinated assault on Kenrich would sound like paranoid Japan bashing were there not for the painstaking documentation filling dozens of file boxes, indicating the systematic, elaborate, and devious methods employed to deprive Mr. Monte of his intellectual property rights. Among the many efforts against Kenrich include:

- The development of knock-off titanate technology based on Kenrich technology by Ajinomoto, Nippon Soda Inc., Tokuyama Soda Ltd., Mitsui Mining and Smelting Ltd., and Kawaken Fine Chemical Co., Ltd. The Japanese have used patent flooding as a technique to obfuscate original patented technology, thus making it difficult for the non-Japanese inventor to defend his/her patent rights. Nippon Soda even copied Kenrich's detailed technical literature to explain their Titecoat knock-off product.
- An elaborate international exchange of bank securities resulted in the commercial paper of Kenrich being held by Dai-Ichi Kangyo Bank (DKB). The DKB through CIT, promptly called in Kenrich's loans to precipitate a bankruptcy and gain control of Kenrich's patents used as collateral against the loan.
- Extraordinary measures have been taken by Ajinomoto to stack an arbitration panel as required under the 1952 US-Japanese Arbitration. Moreover, it will require the case to be argued in Japan where patent laws are highly favorable to knock-off products.
- Improper record keeping and unauthorized sub-licensing by Ajinomoto for the manufacture of the chemicals to companies, such as Junsei Chemical Co., Ltd.

and Kawaken Fine Chemicals Co., Ltd. made it impossible for Arthur Andersen Co. to conduct a proper audit under license agreement to determine royalties due Kenrich. The Andersen audit, initiated in October 1992, took two years and cost Kenrich $63,252. Andersen was stonewalled by Anjinomoto and hence, the audit was unusable.

- Ajinomoto withheld knowledge of patents filed by Japanese companies such as Sony Corp., on such products as videotape, prior to the 1980 license agreement with Kenrich. This concealed the extensive value of Kenrich's technology to Japan's high technology industries.
- Patents were filed in 1995 by Mitsubishi Rayon for high performance carbon fiber advanced composites used in aerospace that contained one of Kenrich's chemicals not licensed to Ajinomoto. Kenrich had discontinued manufacturing this product 15 years ago. Who supplied the pirated chemical? It wasn't Kenrich.

I do not believe that Mr. Monte's case is unusual. It shows how defenseless American small business is in international trade and how little the federal government does to protect fair trade. We should not resent the coordinated actions of the Japanese government, banks and industry, but we should learn from them. Predatory practices are actionable under American law and we must require that the rights of American citizens are freely and fairly insured in the arena of international trade. I intend to ask the U.S. Trade Representative and the U.S. International Trade Commission to launch an official investigation of this matter.

Chairman ROHRABACHER. Thank you very much, Mr. Menendez. We appreciate your presence with us today and hope you can stay as long as you can. We appreciate your opening statement.

Mr. Foley I understand has no opening statement. Thank you for being with us today. There are no votes on the floor of the House, and usually Members take off for their home States and especially during an election year. So I appreciate your presence with us today.

On our first panel today we have with us Bruce Lehman, the U.S. Commissioner of Patents and Trademarks, and Terry Bibbens, who serves as Entrepreneur in Residence in the Small Business Administration Office of Advocacy.

Let me first, before we get into testimony, commend both of you for being here, and I appreciate both of you being here, and I especially appreciate of course Mr. Lehman. The fact is Mr. Lehman and I are adversaries in this. Where I am the chief adversary and I'm the Chairman of this Committee, I appreciate your courage and your firm belief in what you believe in, your advocacy of what you believe in to come here right to a Committee that I'm chairing even though I'm your chief adversary on this issue. So I appreciate your presence with us, Mr. Lehman, very much.

And, Mr. Bibbens, we appreciate you being with us because I appreciate you being here to counteract Mr. Lehman, of course, but beside that.

Again, I think that Americans can disagree and disagree on things that are as fundamental as what we're talking about today and do so in a spirit of friendly competitiveness rather than personal attacks, and at times this debate has gotten hot and heavy and Mr. Lehman has always conducted himself as a gentleman. So I thank you very much.

Mr. Lehman, if you would like to proceed. I would appreciate it if you could summarize your positions, but if you feel you have to go on longer than five minutes, I'll understand that as well. But if you could try to summarize it, that would be open up more time for questions. Thank you very much.

Mr. Lehman, would you like to proceed.

## STATEMENT OF THE HONORABLE BRUCE A. LEHMAN, COMMISSIONER OF PATENTS AND TRADEMARKS

Mr. LEHMAN. Thank you very much, Mr. Chairman.

First, I would like to start out with my first disagreement, you indicated that we had some disagreements, and that is that I would not characterize the difference between our two positions as as much of a disagreement as you might have initially characterized it.

First of all, we share a great deal in common in our view of the patent system. We're both strong supporters of the patent system, very strong supporters of inventors' rights and of exclusivity. I think we may have some disagreements as to how that support is to be fleshed out today in the 1990's both in our statutory law and in the international environment.

This is a wonderful Committee room, the Science and Technology Committee room. It really reflects the best of America and of the past, and as I was sitting here waiting for the hearing to begin I was looking at the inscriptions on your wall. You have a 3,000 year-old inscription from Proverbs. Where there is no vision, the people perish.

Of course one of the great things about America is this country was founded on vision. Indeed Article I, Section 8, the patent clause, is one of the sort of not-very-well-known, probably secrets of the success of this country and the vision of our Founding Fathers.

We obviously have an obligation two hundred years later to keep that vision alive and to keep it up to date with continuing visions as to how this wonderful system should work, and that's basically what the reforms that we're talking of to you today are all about. They are trying to keep this wonderful system that has created so much wealth in America, and is even going to be more important in the coming century, healthy and well and serve the interests of all inventors, large and small, in the United States.

Now, Mr. Chairman, you in your notice gave us some issues, and you have a rather extensive statement that goes into a whole variety of issues, and I know you will permit that to be submitted for the record.

What I would like to do in keeping with your idea of keeping things somewhat short so that we can answer questions and we can get on to the other witnesses is really to focus on the issues that you have raised and give you a little bit of the background, and the Members of the Committee, as to why we've taken the position that we have taken, and other witnesses that you will hear this morning support that position.

First of all, you have asked how will patent law changes affect patents generated by energy and environmental research at federal facilities, and the short answer to that is I believe very strongly that these changes will encourage and make more efficient the transfer of this technology to the private sector, and, most explicitly, the exploitation of this technology and turning it into valuable products and processes, and also assist us in seeing that these technologies can be exploited on a global basis.

Energy and environment is one of the areas where the U.S. particularly has a technological lead in many respects. So it's very im-

portant that we get these inventions out to the marketplace very quickly, and it's very important that we get global protection for these inventions, and I appreciate Mr. Menendez' comments because it's something that we're deeply concerned about and are working on very much, and I would be happy to go into those problems if you would like, sir, later on in questions.

But, what is in the interests of our environmental and energy industries and in getting particularly government-funded inventions out to the marketplace? What is in the interests of those industries in my view is to get people in and out of the Patent Office as absolutely quickly as possible and get them onto the marketplace.

I had the occasion to review Mr. Bibbens' testimony before coming here, he was kind enough to share a copy with me, and I must say I also agree with a good deal of that testimony, even though we have some differences of opinion.

One of the important points which Mr. Bibbens has made is that the patent, particularly for a small innovator—and of course federal inventions are not small inventor inventions—but particularly for the small innovator—and I know that's a constituency of particular concern to the Chairman—the patent plays a very important role in obtaining capital, you know, going to the venture capital markets, and even for big businesses it plays an important role.

When a patent is issued from our office, frequently there will be a press release and then a meeting with Wall Street analysts and the stock price goes up and it enables companies to get the financial resources that they need to take what is nothing more than an idea in the patent and reflects perhaps some fundamental research to do everything that is necessary to bring that product to the marketplace, which involves a great deal of investment. It involves capital. The patent plays a very important role in obtaining that capital.

Now I think it should be self-evident that a system in which we spend a great deal of time in the Patent Office and futz around with paper and bureaucracy prevents the issuance of that deed to the idea that can generate the capital that the innovator needs to go to the marketplace, and that anything that delays that process is bad. We want to get people in and out of the Patent Office as quickly as possible.

So I think this really is the first point to make about the question of a 20-year term from filing as opposed to a 17-year term from issuance of the patent.

If a patent is issued within 36 months filing, that is within three years of filing under our new system, no patent applicant or patentee in our Patent Office will have any less patent term than they had before, and indeed if we can speed up that process they'll have more, and that is exactly what these reforms are all about.

We do not want to have any patent applicant in our U.S. Patent and Trademark Office sitting in our Patent Office dealing with bureaucrats for 36 months. In fact, we're currently as part of the aftermath of the TRIPS legislation, we are currently reengineering our procedures in the Patent and Trademark Office with the goal, which we intend fully to implement, that no patent applicant will have the U.S. Patent and Trademark Office take more than 12

months of its time—no patent applicant—to process the application. And the average time that we spend in processing the application will be about two months.

Now if we do that there won't be anyone in this country who won't be able to get a patent application within 36 months, and they will in most cases have a longer patent term than they had under the preexisting system.

But there will be some other benefits. Not only will they get to the marketplace more quickly and be able to use that deed to their idea to get financing to make this idea a competitive reality—and keep in mind that in today's modern world we can't futz around. We've got to get these people in and out of the Patent Office to the marketplace because somebody else is quick on their heels and will get there with a better idea first.

But there is a great deal of advantage, because we are now in a global economy, to having a situation in which the patent term that an applicant has in the United States expires the same time that the patent term does in other countries as well.

Now under the international patent system if you want to get patent protection in other countries, you have to file virtually simultaneously with filing in the USPTO, and that's the same thing in reverse as well.

Under the old system we had a situation where oftentimes patents would expire elsewhere in the world at a different time from where they would expire in the United States, and this is a very important point because it also very much affects the small business community.

As strongly as I personally feel and as the Administration feels, and I think we have a consensus about the importance of having exclusivity for innovators and having a reasonable period of exclusivity, and 17 years at least is a reasonable period of exclusivity, it is also very important that when that exclusivity is over with that the innovation go into the public domain and that other people be able to work with it.

We have had a situation in which many innovations have gone into the public domain elsewhere in the world before they have gone into the public domain here. Now keep in mind that many of our patent applicants are foreign applicants in the United States. So we've had a situation in which, for example, a Japanese or German company has seen its patents go into the public domain elsewhere in the world, but they've had longer patent protection because they've been able to drag out the patent process, the prosecution process, in the United States here.

What's the implication of that? The implication is that the American competitor who wants to use the public domain information has their hands tied behind their back while other competitors around the world can use that information.

So that's not a good system. We want to make certain that we have patents expiring at the same time everywhere around the world, and we also want to make certain that patent applicants get in and out of the Patent Office as quickly as possible.

Now I would like to go to the next point, the next legislative point, not the issues that you've raised, and that is the question of the 18-month publication because that's legislation that is pending

and you've raised that, Mr. Chairman, and I would like to talk about that a little bit.

We have proposed that the United States adopt a system which is in use everywhere else in the world—that a patent is published 18 months after it is filed. Now keep in mind that if we succeed in reengineering the system there will be very few patents that will be published before they have been issued.

Indeed right now, and even if we look at the statistics for the past, roughly 50 percent of all patents issue at around 18 months. So our task in trying to reduce patent pendency is a pretty reasonable task and I think we can accomplish that

But here again when I got back to the interests in the public domain and the interests of the small innovator. If you're a small innovator you obviously have, I think, by definition, limited resources, and you want those resources to be used where you're going to get a payoff. One of the worst things that can happen to a small innovator is to be putting your life savings and your heart and soul into an enterprise only to find out after you've made this investment and you're about ready to perhaps go to the USPTO and get a patent that somebody else got there before you, and invented it before you, and that you're out of luck.

In fact, I think what the small innovator wants is, the small innovator wants, one, protection for their own innovation, but they want also to be able to know what is out there so that they can focus their efforts on areas where there will be a payback, and that is the principal purpose of publishing at 18 months. That is to guarantee that at least at 18 months, in every case that an invention that is out there, it will be known so that you will not have people in effect replicating something that is already done.

Now there is another very important aspect of 18-month publication for a small innovator and a big innovator as well, and I think this issue has been mischaracterized. It has been characterized as somehow or other disclosing a technology so that other people can steal it.

We may have a disagreement about that, Mr. Chairman, and I would like to persuade you to my point of view. I totally disagree with that characterization. In fact, I would characterize it as just exactly the opposite. 18-months publication is putting your marker out there and saying to the world, hey, I own this invention. Let's assume that we screw up and it takes us 48 months to process a patent application, at least at 18 months you will be able to tell the world I own this invention. You've all seen patent pending on products. That's what patent pending is about. Now people don't choose to use that, but that's putting out your marker and saying, hey, this belongs to me and don't tread on me.

Furthermore, the legislation that's pending in the House Judiciary Committee very specifically provides remedies for an innovator if somebody treads on that innovator. It says that if somebody comes along and they take that technology after it has been published and go to the marketplace with it, that once the patent is issued there is an absolute right on the part of the patentee and the innovator to go back and sue the guy and collect money. So there is a protection. There are teeth in this don't-tread-on-me no-

tice as well as just generally making the situation clear for all involved.

Chairman ROHRABACHER. Mr. Lehman, if you could summarize now.

Mr. LEHMAN. Yes. Let me point out, by the way, that this 18-months notice will apply to foreign inventions, and it's very important for the U.S. innovator and the small business person to know when, particularly when a foreign inventor has one of these patent applications pending because in foreign systems these inventions are disclosed. So right now we're in the situation where the U.S. guy, unless he has an office in Tokyo or something like that, does not know what Japanese inventions are pending, for example, at 18 months, but the Japanese competitors do. That is the fundamental reason for the 18-month provision.

And, finally, with regard to reexamination of the other provision, that is very, very simple. By the way, the reexamination idea came up, as did 18 months, in hearings that we had in California and in Washington where we invited testimony from the small business community, particularly from the Silicon Valley community and others, and the primary concern there was that innovators don't want to have to spend millions of dollars in court. They want to spend money on investments and getting their product to the marketplace.

At the present time, if the Patent and Trademark Office has made a mistake or you think we've made a mistake, at the present time, the primary remedy available to you is to have to go to court and spend millions of dollars on patent litigation.

What we are attempting to do here, and I think it's something that is very popular in the Congress these days because we're trying to reduce litigation costs generally, is to provide more efficient procedure where you can come in the Patent Office and have a review of a patent which has been issued which may have been inappropriately issued because the prior art wasn't considered and have a very efficient low-cost review of that patent and save yourself millions of dollars, and that's particularly important for the small innovator who cannot afford litigation.

And I think that, Mr. Chairman, really answers the other questions that you had here. We think that these changes serve the interests of independent inventors and business people, and we think that they will help the United States become more competitive and develop international markets.

There is one thing I would like to correct here, and that is that whereas small innovators and small business people are a very, very important part of our constituency and of the Patent Office, they are not the vast majority of applicants in our Patent Office. Of American applicants they are roughly half. So they are a very important group.

But I also think it is very important, and I am pleased that Mr Bibbens acknowledged that in his testimony, to recognize, and you will hear from some of these people later, that a very important part of economic growth and of technological development in the United States also occurs in large corporations, and they are very largely responsible for much of the economic growth that we have

experienced, and particularly the high-tech competitiveness that is making us an unchallenged technological leader in the world.

And I would be happy to answer any questions you have, Mr. Chairman.

Chairman ROHRABACHER. Thank you very much, Mr. Lehman. We did give Mr. Lehman a little longer because, as I said, he has come here as the chief advocate of this position and we wanted to make sure that he got his points across.

[The prepared statement of Mr. Lehman follows:]

STATEMENT OF BRUCE A. LEHMAN

ASSISTANT SECRETARY OF COMMERCE AND

COMMISSIONER OF PATENTS AND TRADEMARKS

ON

CHANGES IN U.S. PATENT LAW

AND

THEIR IMPLICATIONS FOR ENERGY AND ENVIRONMENTAL RESEARCH AND DEVELOPMENT

BEFORE THE

SUBCOMMITTEE ON ENERGY AND ENVIRONMENT

OF THE

COMMITTEE ON SCIENCE

U.S. HOUSE OF REPRESENTATIVES

MAY 2, 1996

Thank you Mr. Chairman. I am pleased to testify today in support of the recent and proposed changes to our patent system and, specifically, to the positive effect these changes will have on research and development in the energy and environmental fields. I can unequivocally state that the changes that I will address in my testimony will result in a vastly improved patent system in the United States. Certain real benefits to U.S. inventors in another major patent system have also resulted from the changes we have made and those we have proposed. The cumulative effect of these changes will positively affect all technologies; and because, as the saying goes, "a rising tide lifts all ships" -- the changes will have an equally positive impact in the specific fields of your inquiry today, energy and the environment.

At the outset, I would like to bring to your attention my testimony on these matters before other House and Senate Subcommittees. On August 12, 1994, I testified before the Subcommittee on Patents, Copyrights and Trademarks, Committee on the Judiciary, United States Senate, and the Subcommittee on Intellectual Property and Judicial Administration, Committee on the Judiciary, United States House of Representatives, on the then-current proposals to implement the Agreement on Trade Related Aspects of Intellectual Property

Rights that was concluded under the Uruguay Round of multilateral trade negotiations. On June 8, 1995, I testified before the Subcommittee on Courts and Intellectual Property of the Committee on the Judiciary, United States House of Representatives, on H.R. 1732, the Reexamination Reform Act of 1995, and H.R. 1733, the Patent Application Publication Act of 1995. Lastly, on October 25, 1995, I testified before the Subcommittee on International Economic Policy and Trade of the Committee on International Relations, U.S. House of Representatives, on the negotiations between the United States and Japan that produced two accords in 1994 that obliged the United States to set in motion certain changes to our patent system. Copies of my written testimony for each of these hearings are attached.

The adoption of the recent changes (patent term) to our patent system and the proposals for further changes (early publication and expanded reexamination) have been the subject of bipartisan domestic recommendations going back as far as President Johnson's 1966 Commission on the Patent System. As recently as 1992, President Bush's Secretary of Commerce established a Commission on Patent Law Reform that also recommended the adoption of such changes. I held public hearings on some of these and other changes to our patent system in October of 1993 during which overwhelming support for term reform and early publication was voiced. The new term system and the proposed changes also enjoy the support of cutting edge businesses, including 19 of the top 25 U.S. exporters (the remainder voicing no position). Major trade associations and intellectual property organizations also support the new term system and the proposed changes to our patent system.

In the context of this overwhelming and long-term support for change, I'd like to put the conspiracy theories that have surrounded these changes to rest. There is no conspiracy at work here, domestic or otherwise. There has been a long-felt need for these changes and the process for effecting them has been transparent from the beginning. The bottom line is that, for the reasons given below and in the many previous hearings on the subject, the patent law changes put into effect last year and the ones proposed by Chairmen Moorhead and Hatch are good for our patent system. They are good for our country; they are good for industry and innovation; and they are good for inventors, large and small.

While the concept of holding public hearings on many patent law issues was taking shape in July of 1993, I was given a leadership role by the new Administration in the intellectual property negotiations in the United States - Japan Framework Agreement. The Administration's main goal in these intellectual property negotiations was to enable U.S. patent applicants to obtain timely and exclusive rights in Japan. These negotiations resulted in two accords that were signed in 1994. These negotiations were an unqualified success for the United States insofar as we received in exchange for the commitments we made in the negotiations - adoption of a 20-year patent term, expanded reexamination and the early publication of patent applications, each a domestically desirable and broadly supported change in and of itself, concessions from the Japanese that addressed some of the major problems U.S. applicants have had with the Japanese patent system, as identified in a 1993 GAO report on the Japanese patent system. The Japanese agreed to accept English-language applications and permit correct of translation errors, to institute a revised system of accelerated examination, to adopt a post-grant opposition system and consolidate proceedings where appropriate and to no longer render arbitration decisions ordering dependent patent compulsory licenses. These results were big wins for the United States - I always regard a negotiating situation in which you gain something important for something that is, otherwise desirable and supported as a major victory. These accords rise to that level.

In my testimony today, I would like to address the specific legislative issues that have given rise to your concerns. First, I will discuss the current 20-year patent term and the various proposals in H.R. 1733 and H.R. 359/S.284 that address certain patent term concerns. Then, I will discuss the early publication aspects of H.R. 1733 and the expanded reexamination proposal in H.R. 1732/S.1070. Lastly, with the above discussion serving as a backdrop, I will summarize the benefits of the recent and proposed changes to our patent system that are supported by this Administration and respond to the specific questions posed in the charter for your hearing regarding the effect of those changes on the energy and environmental fields.

**The 20-Patent Term, per the URAA**

In accordance with the Uruguay Round Agreements Act (URAA), the term of a United States patent was changed, effective June 8, 1995, to end 20 years from the earliest effective filing date of an application that matures into the patent as opposed to 17 years from the grant date of the patent. This new system aligned the United States system for measuring patent term with every other major patent system in the world. Safeguards were provided to address problems that may lead to a loss of effective patent term. Accordingly, provisions in the new law enable an applicant to extend the term of a patent which, otherwise, would have had a shortened term due to pre-issuance delays. Patent term extensions of up to five years are available for patents, the issuance of which was delayed due to interference procedures, secrecy orders and successful appellate review. These extensions are found in section 154(b) of title 35, United States Code.

The patent term changes that went into effect last year also created a low cost provisional patent application system that will, among other things, address the special needs of small businesses, independent inventors and the university community. Under this system, small entity inventors can file low-cost ($75.00), simplified provisional patent applications that enable them to stake a claim and preserve their rights to a patent. Once filed, the inventor enjoys up to one year to refine his/her invention, attract investment, and/or license his/her invention before filing a non-provisional patent application and incurring higher prosecution costs. This one year is not counted as part of the 20-year patent term. In essence, provisional patent applications provide a less expensive and less complicated way for an inventor to gain access to the patent system and to protect his or her rights.

The 20-year patent term provides incentives to patent applicants and the Patent and Trademark Office to expeditiously process patent applications. There are no incentives for patent applicants, as there were in the previous system, to unduly delay the patent application process because the 20-year term clock begins ticking upon the filing of a patent application. Inventors who conscientiously pursue their patents will clearly benefit. With a current average pendency of 19-20 months at the PTO, the vast majority of applicants will receive a longer term under the 20-year term system than under the previous 17-year term system. This means that with the 20-year from filing patent term, most patentees will enjoy in most cases more

than 18 years of full patent rights. We intend to further reduce patent application pendency, further increasing net patent term for all patentees. We are seriously committed to an efficient, rapid examination of applications in all fields of technology. To that end, we issued new examining guidelines to speed and simplify the examination process for two of the most challenging technical areas with which we are currently confronted - computer-implemented inventions and biotechnology.

The only inventors who are likely to lose term under the new 20-year term system are those who might want to bury (submarine) their inventions in the PTO through the filing of continuing applications and then let their submarines surface once the technology has become widely used because it has been either independently discovered or adopted on the assumption that it was not patented. These so-called submarine patents have the power to shut down, or demand royalties from, those businesses that have innocently adopted the late-patented technology. Problems of this nature are particularly severe for small businesses that can ill afford to become engaged in expensive patent lawsuits. The new patent term appropriately penalizes parties that intentionally delay the issuance of a patent.

The 20-year patent term system encourages the speedy determination of patent rights; rights that are, as a result, defined closer, in time, to the date of invention. This system is beneficial because the level of certainty regarding what is and is not protected by patents is enhanced and innovators and industries can make informed technological and business decisions.

For those U.S. patents that have counterpart patents in foreign countries, the included technology will now fall into the public domain in the United States at approximately the same time it enters the public domain in every other major country because all patent rights in a given invention will expire at approximately the same time throughout the world. U.S. industry and inventors will be able to use technology in the United States at about the same time it is freely adopted throughout the world. U.S. industry is no longer encouraged to move plants across foreign borders to overcome disparities in the expiration of patent rights.

**20-Year Term in H.R. 1733**

H.R. 1733, the Patent Application Publication Act of 1995, as introduced by Representative Moorhead, the Chairman of the Subcommittee on Courts and Intellectual Property, differs from the Administration's draft early publication bill. One significant difference in the Moorhead bill is the addition of a section on patent term extensions for pre-issuance delays. This section would extend the patent term extension authority now embodied in section 154(b) of title 35, United States Code, to enable a patent owner to receive an extension where issuance of a patent was delayed due to unusual administrative delays by the Office. It would also enable a patent owner to obtain an extension of up to ten years in duration for pre-issuance delays. While I feel that the law currently on the books relating to patent term adequately addresses the issue of extensions for pre-issuance delays, I acknowledge the reasonable concerns of those who may take a different view. Accordingly, I regard Chairman Moorhead's bill as a valuable compromise on this issue and we have no objection to it.

When the Administration developed legislation to implement the Uruguay Round Agreements, we carefully reviewed existing examination practices. We then considered the most likely effect of a 20-year from filing patent term; namely, promotion of a rapid conclusion of prosecution. Based on this careful evaluation, we proposed, and Congress enacted, legislation that provided a limited form of patent term extension authority for pre-issuance delays. Section 154(b) of title 35, United States Code, in force since June 8, 1995, thus provides that patent owners will be able to extend the term of patents, up to a maximum of five years, where the issuance was delayed due to an interference proceeding, a secrecy order or a successful appeal by the patent owner.

Present section 154(b) does not include the authority for patent term extensions on the basis of "unusual administrative delays." The reason we did not propose inclusion of a provision to provide patent term extensions on this basis was that, in our opinion, there would not be a significant number of applications in which administrative processing delays, attributable solely to the actions of the Office, would cause pendency of an application to

exceed three years. Present section 154(b) also limits pre-issuance patent term extensions to a maximum of five years. Again, this was based on our belief that there would not be a significant number of applications that are subjected to secrecy orders, or appeal or interference proceedings that would exceed five years.

It remains our belief that the instances will be extremely rare in which delays due to administrative processing of applications attributable solely to the Office will cause pendency to exceed three years and that the current statutory authority that limits patent term extensions to five years will provide an adequate remedy in all but the most rare of situations. However, we are aware of the reasonable concerns that have been expressed by Chairmen Moorhead and other individuals relating to the 20-year patent term and the potential for relative loss of patent term under certain unusual circumstances. The provisions in H.R. 1733 related to patent term extensions would fully address the basis of those concerns. Because the instances in which these provisions would apply will be rare, and because these provisions fully address the concerns that have been identified, we have no objection to the limited changes that H.R. 1733 would make to section 154(b). As noted above, we regard this portion of H.R. 1733 to be the solution to the patent term controversy that has festered since the drafting and enactment of the URAA.

20-Year Term in H.R. 359/S. 284

In essence, these bills would change the manner in which patent term is measured from the current 20 years from the application filing date to 17 years from grant or 20 years from filing, whichever is longer. The bills also include a provision that would require publication if a continuing application is filed that claims the benefit of a prior application filed more than 60 months earlier. The proponents of these bills are concerned that the new 20-year patent term system will result in patents having shorter terms than under the old 17-year from grant patent term system.

Commentators have noted that these concerns are unfounded and that patent terms under the new 20-year patent term system may, in fact, be longer than those under the old system. Professor Mark Lemley, of the University of Texas, in his study entitled, "An

Empirical Study of the Twenty-Year Patent Term" has concluded as much. Our statistics at the PTO indicate that under the new term measurement system, the majority of patentees will get over 18 years of patent protection and the vast majority of patentees will get more than 17 years of protection because the PTO completes examination of applications, on average, in under 20 months. A PTO analysis of previously granted patents also generally supports this proposition.

As noted above, the URAA also included provisions to establish a simple, low-cost internal or domestic priority system that permits inventors to easily preserve their rights to a patent for up to a year, with that time not counting in the patent term. Further, the URAA provides for the extension of the term of patents for up to five years where delays have been caused by appeals, interferences or national security restrictions. H.R. 1733 enhances these extension provisions. In these respects, many of the concerns of the proponents of the Rohrabacher/Dole bills are fully addressed in the new patent term system.

The changes brought about by the URAA were strongly supported by a broad cross-section of our patent user community. Public hearings, held in October of 1993 on the issue of the adoption of a 20-year patent term measured from the application filing date, revealed wide support for such a change. At the hearings, fourteen people provide oral testimony on the issue - no one opposed, in its entirety, the concept of measuring patent term from the application filing date. Twenty people provided written statements, only, on the issue. Only 3 people opposed the concept. So, only 3 out of 34 people/organizations providing comments were opposed to measuring patent term from application filing date. Those not opposed included representatives of inventor's groups and small entity patent applicants. Further, the National Association of Manufacturers, the Pharmaceutical Research and Manufacturers of America, and every major intellectual property bar association and others supported this change.

I believe that the changes proposed by the Rohrabacher/Dole bills are unnecessary and undesirable. The changes are unnecessary because their goal -- patents that provide at least 17 years of exclusive rights -- will be met or exceeded by the new 20-year patent term system.

The changes are undesirable because they will permit certain applicants to abuse the system as they have in the past. Patent applicants would be able to manipulate the system to delay the grant of rights, thus re-introducing the problem of submarine patents, effectively eliminated by the new patent term system. The publication requirement of the Rohrabacher/Dole bills will not eliminate these problems because certain applicants will still be able to amend long-pending applications to embrace technology in use in a given industry with the unjustifiable reward of a 17-year patent term when that applicant chooses to allow his/her patent application to issue as a patent. Further the bill does not and cannot rationally provide provisional rights to protect applicants whose applications would be subject to publication prior to grant. Provisional rights cannot be provided in a patent system that measures term from the date of grant. In such a system, a patentee would be able to collect royalties for an unlimited period of time while the application is pending, in addition to the full rights provided for 17 years once a patent is granted.

I firmly believe that the patent term and provisional application changes brought about by the URAA are the most effective way to deal with many of the problems that have long-plagued our patent system. However, I view these changes as only the first steps on the road to an improved patent system in the United States.

The PTO fully supports the concept of early publication of patent applications, discussed more fully below, and views early publication as a critical next step in the reform of our patent laws. The 20-year patent term and early publication are inextricably linked. For all the benefits of early publication, as a stand-alone proposition, the most important aspect of early publication is its synergistic interaction with a 20-year patent term system. Once an early publication system is in place, in conjunction with our current, improved patent term system, eventual patentees will be able to avail themselves of up to 19.5 years or more of patent rights, regardless of the pendency of their individual patent applications. This is made possible by the fact that applicants can now file provisional applications, followed within a year by the filing of a nonprovisional application, which would then be subject to examination and may be granted as a patent. If early publication is superimposed on this process, the nonprovisional application would be published 6 months after its filing date, assuming it was

filed 12 months after the provisional application filing date. The publication would give rise to provisional rights for the period of time from publication (6 months after filing) to grant and full rights from the time of grant until 20 years from the filing date of the nonprovisional application. Again, this would result in 19.5 years of patent protection for any patent applicant, in any field of technology, regardless of the pendency of the individual patent application. If earlier publication is requested by an applicant, more than 19.5 years of patent protection would result. The ability to obtain up to 19.5 years or more of patent protection would result in a dramatic improvement in our patent system. The Rohrabacher/Dole changes would pale by comparison. It is the Administration's fervent desire to have early publication legislation in place and in effect as soon as possible. In so doing, the U.S. patent system will be significantly improved and the concerns of the proponents of the Rohrabacher/Dole bills will be laid to rest.

**Early Publication in H.R. 1733**

This bill would provide for automatic publication of patent applications 18 months after their earliest effective filing date. This bill is based on an Administration proposal that was forwarded to Congress last year, yet contains a number of significant changes, as discussed above and below. We support the legislation as a whole, because we believe it will serve the interests of the public in the patent system, and, when combined with the new patent term which took effect last year, will clearly serve the interests of all patent owners.

Currently, all applications for patent in the United States are kept in confidence by the Office until a patent is granted. Only upon grant are the contents of the application published. This practice differs from nearly every other country in the world. In most countries, patent applications are published 18 months after the earliest effective filing date claimed by the patent applicant.

H.R. 1733 would change our system to conform to this well-defined global model by providing for publication of an application at a fixed time after the filing of the application. I would like to focus my remarks on three aspects of the legislation that I believe are particularly important.

First, the legislation would require the Office to publish patent applications eighteen months after the earliest effective filing date claimed for the application. That date would be the original application filing date if no claim for foreign or domestic priority (no provisional application filed) is made. If an applicant claims the benefit of the filing date of one or more earlier filed U.S. or foreign applications, publication will occur 18 months after the earliest of any such date claimed. Importantly, only applications filed under sections 111(a) and 363 of title 35 will be subject to the publication requirement; provisional patent applications and design patent applications will not be published.

The legislation would also create "provisional rights" for patent owners. These rights would permit the patent owner to recover a reasonable royalty from any party that uses the subsequently patented invention during the period between the date of publication and the date of the patent grant. To obtain a reasonable royalty, the legislation requires that the invention claimed in the patent be identical or substantially identical to the claimed invention as published, and that the infringing party have actual notice of the published patent application. Provisional rights will serve to deter infringing use of the published invention prior to the date of the patent grant, and to compensate the patent owner if such use occurs.

Finally, the legislation will also give published patent applications "prior art" status similar to patents. Thus, a published application will be applicable against other pending applications as a prior art document as of its earliest effective domestic filing date.

Pre-grant publication will provide a number of significant public benefits. Most significant is the availability of an English-language disclosure of foreign origin patent applications no later than 18 months after the foreign application was filed abroad. In most cases, we will publish an English language version of the foreign origin application only six months after a foreign inventor decides to seek protection in the United States. This will occur in those cases where a U.S. application is based upon an earlier filed foreign application and the applicant uses the full one-year priority period available under the Paris Convention. Pre-grant publication will thus place our domestic inventors on an equal footing with inventors in

foreign countries, who now have access in their own language to technology disclosed in U.S.-origin applications 18 months after having been filed in this country.

In an age where worldwide patent protection is becoming increasingly important, our current system places U.S. inventors at a clear disadvantage. For example, an invention that is the subject of a patent application in Japan will be published in the Japanese language at 18 months. Inventors reviewing the Japanese patent application disclosures will have the benefit of the early disclosure in Japan. This is especially beneficial to domestic inventors in Japan as they are able to obtain an early disclosure of the technology in the Japanese language. Meanwhile, in the United States, domestic inventors do not have the benefit of an English language publication of the technology disclosed in an application for a patent until the patent is actually issued. This situation provides foreign inventors with a clear advantage relative to U.S. domestic inventors.

Early publication will provide American inventors with a prompt English-language publication of relatively current technology. There will be no need to await the grant of a patent to gain access to the technology therein. Further, technology contained in patent applications that never mature into patents will also be available. Our domestic inventors will be able to take advantage of this earlier access to English-language patent application technology and build upon it more rapidly than they are able to do in our current system. In this way, the Constitutional objective of "promot[ing] the progress of ... [the] useful arts" will be advanced.

In addition, this bill will promote more efficient use of limited research and development resources by preventing duplication of research, signaling promising areas of research, and indicating which fields or research topics are being pursued by others. Further, with this law, inventors will be able to avoid the commitment of substantial resources to develop an invention based on an incomplete, erroneous assessment of its patentability. In this regard, early publication will afford the public an enhanced opportunity to submit prior art -- relevant, prior technical information, to the Patent and Trademark Office in connection with pending applications. In some technologies, this will provide a mechanism to bring the best and closest prior art to the attention of the Office while applications are pending.

This legislation will also help to address the so-called submarine patent problem that has long plagued our patent system, to the extent it may not be addressed by the 20-year patent term system. Submarine patents surface from applications that have been pending in the PTO for many years. The belatedly granted patents often cause disruptions in the market place because competitors unknowingly regarded and adopted the later-patented technology as commonplace. Those competitors are often required to stop using the later-patented technology or negotiate a license with the late-arriving patentee. Early publication will prevent submarines from diving into the bowels of the PTO and will provide the above competitors with the necessary information to make the requisite business decisions before entering a given field.

Pre-grant publication will also ensure that information about all pending applications will be available to U.S. researchers, scientists, inventors and businesses after a reasonable period. Delays in the processing of applications, whether intentional or unintentional, will no longer prevent American innovators from predicting where they should direct their research efforts.

HR. 1733 also introduces a provision related to pre-grant publication that would enable an independent inventor, under certain circumstances, to delay the publication of an application until three months after issuance of an Office action addressing the merits of the application. We recognize that this provision has been added to address a legitimate concern that has been expressed by an important segment of our patent user community; namely, that an independent inventor who is not planning to pursue protection abroad obtain some indication from the Office as to patentability prior to the publication of his or her application. Based on our current examination statistics, it is an extremely rare occurrence where an independent inventor has not received some indication from the Office on the merits of his or her application prior to the 18th month of pendency. Furthermore, procedures are available today that enable an applicant to obtain expedited processing of an application. Such procedures can be invoked in instances where an applicant desires an early indication of patentability on an application. Accordingly, we do not perceive this provision to be necessary. However, we also recognize that the provision as crafted will not place a

significant burden on the Office. Accordingly, we have voiced no objection to the inclusion of this provision to the extent it is needed to address a legitimate concern.

**Expanded Reexamination in H.R. 1732/S. 1070**

The Reexamination Reform Act of 1995, would change our reexamination system to make it a more effective, and thus more attractive, option for reviewing patent validity questions. It would do this by increasing third party participation throughout the reexamination proceeding and by allowing review of patent validity questions other than those based on prior art. These changes directly address the perceived shortcomings of our current reexamination system.

The bill would provide limited, yet meaningful, participation by a third-party requester throughout the reexamination proceeding. It would do this by allowing a third party to provide written comments during each round of prosecution in the reexamination proceeding. A third-party requester, for example, would be permitted to provide written comments on statements made by the patent owner in response to an Office action. The bill would also expand the grounds upon which reexamination of a patent could be initiated to include non-compliance with all aspects of section 112 of title 35, United States Code, except the best mode requirement. Finally, the bill would provide a third-party requester with a right of appeal from a final decision of the PTO in favor of the patent owner. Importantly, the bill includes safeguards to prevent third parties from using reexamination to harass patent owners. These safeguards include limitations on whether and when a request for reexamination may be filed and creation of a statutory estoppel against further litigation of patent validity questions addressed in reexamination proceedings, when a third party seeks and obtains judicial review of an Office determination.

H.R. 1732 would make several fairly significant improvements to our patent reexamination procedure which are fully consistent with the original Congressional intent expressed in the creation of this procedure. When Congress created the reexamination procedure in 1980, it cast it as an expedited, low-cost alternative to patent litigation that could be used to obtain administrative review of certain patent validity questions. To meet this goal,

reexamination was structured as an ex parte proceeding that excluded participation by third parties during a reexamination proceeding. Reexamination was also limited to the review of only certain issues affecting patent validity; namely, compliance with sections 102 and 103 of title 35, United States Code, in view of patents or printed publications. Substantial new questions of patentability in view of other statutory requirements of patentability could not serve as a basis for initiating or conducting reexamination.

Thus, in our current system, a third party may cite prior art consisting of patents or printed publications, and request reexamination on that basis. If the Office finds that a substantial new question of patentability exists in view of the cited prior art, the Commissioner will issue an order granting the reexamination. The patent owner is then given the option of responding to the reexamination order. If the patent owner so responds, the third party may file a subsequent reply. This ends the substantive participation in the reexamination by the third-party requester.

These restrictions have helped make patent reexamination an orderly, expedited procedure. However, by the same token, these restrictions are why our reexamination system has not lived up to its potential. As I mentioned earlier, many have expressed concerns over the effectiveness and usability of our current reexamination system. One particularly striking criticism is the often-heard advice given to a third party who knows of pertinent prior art that could invalidate a patent. The advice is that the third party not use patent reexamination. Instead, third parties are advised to reserve the prior art for later use in either a negotiation with the patent owner, or an infringement action in Federal court. Individuals advocating this stance point to the absence of effective third-party participation in the reexamination proceeding coupled with a perception of "enhanced" validity that a reexamined patent enjoys, especially before a jury. Comments like these suggest to me that as far as third parties are concerned, there is a significant lack of public confidence in the current reexamination system as an effective means for challenging the validity of patents.

H.R. 1732 directly addresses the basis of this lack of public confidence in patent reexamination. If enacted, H.R. 1732 would provide third parties the opportunity to

participate throughout the reexamination proceedings, but would do so without converting reexamination into a full-scale inter-partes proceeding. The bill would accomplish this by permitting a third party who has initiated a reexamination to provide written comments on any patent owner response to an official action of the Office. It does not permit the third party to raise new issues, nor does it give the third party the option of delaying the proceedings by filing multiple responses or by requesting extensions of time. Third parties will also gain a right of appeal from any final determination of the Office in the reexamination proceeding. This right of appeal, however, comes at the cost of preclusion against subsequent litigation of matters addressed, or that could have been addressed, during reexamination in subsequent judicial or administrative proceedings, if both the third party and the patent owner participate in an appeal to the Federal Circuit following the reexamination proceeding.

The bill would also expand the grounds upon which one may challenge patentability to include compliance with all aspects of section 112 of title 35, United States Code, except best mode. This is an important and desirable change, as validity questions related to claim scope and enablement often lie at the heart of a patent dispute. By making it possible to review these questions before the Office, patent owners and third parties alike will benefit through access to the special technical and legal expertise of the Office on the full range of issues with which the Office is familiar

Finally, although a key reason for H.R. 1732 is to "open up" reexamination, the bill has been carefully crafted to ensure that patent reexamination does not become a vehicle for harassing patent owners. The bill contains two important safeguards in this regard. First, as noted above, the bill explicitly estops a third party from further litigating issues that were or could have been addressed during the reexamination if they participate in an appeal to the Federal Circuit arising out of the reexamination proceeding. This measure will prevent parties from using reexamination simply as a prelude to litigation on the same patent validity issue. Second, the bill precludes a third party from initiating multiple concurrent reexaminations, or from initiating a second reexamination on the same issues resolved in an earlier reexamination proceeding initiated by that party or its privies.

The changes proposed by the bill will make reexamination a more effective inter-partes procedure, giving patent owners and third parties alike a speedy, inexpensive and reliable way to resolve important questions related to patent validity. I believe the bill effectively addresses the calls for reform of the reexamination system that have emanated from various industry groups and the patent bar.

In the context of your concern for small entity patent applicants and patentees, I believe that the small entity applicant/patentee is clearly served by having an alternative to costly and lengthy patent litigation in the courts. If sued on a questionable patent, the independent inventor can request reexamination of the patent and have validity questions decided in a speedy and relatively inexpensive administrative proceeding. Further, the independent inventor who challenges a patent held by a large and wealthy entity would be put on more equal footing with that entity. In this respect, the patent holder in reexamination proceedings is, through historical experience, more likely to be a large entity than an independent inventor.

Summary of Benefits of Recent/Proposed Changes

The benefits of the recently enacted and proposed changes to our patent system that are supported by this Administration can be summarized as follows:

20-Year Term:

-- incentive to rapidly conclude application prosecution;

-- speedier determination of patent rights;

-- longer term for most patents;

-- common expiration dates of worldwide patent rights for a given invention;

-- safeguards for pre-issuance delays;

-- undermines submarine patenting; and

-- the ability to file provisional applications.

Early Publication:

-- the availability of provisional rights;

-- synergistic effect with 20-year term, > 19.5 year of patent rights regardless of pendency;

-- prompt English-language disclosure of relatively current technology:

-- earlier English language disclosure of foreign origin applications;

-- earlier English language disclosure of all applications not granted within 18 months;

-- more efficient use of limited research and development resources by minimizing duplicative research;

-- submarine patent applications are forced to the surface; and

-- availability of first determination of patentability prior to publication for independent inventors.

Expanded Reexamination:

-- process becomes a more effective option for reviewing patent validity for all patentees and third parties, large and small;

-- increases third party participation in the process; and

-- expands the grounds upon which reexamination can be based.

These benefits are not technology-specific. They are equally applicable to all technical fields. Accordingly, these benefits will accrue to the specific fields of energy and the environment.

**The Effect on Energy/Environmental Issues**

The charter for this hearing sets out three inquiries. These inquiries are repeated here and our response to each is provided.

(1) How will patent law changes affect patents generated by energy and environmental research at federal facilities?

Patents generated by energy and environmental research at federal facilities will reap the benefits of all of the above improvements. Most notably, research at federal facilities appears to be uniquely suited to take advantage of the benefits of early publication. Specifically, the relatively faster English-language disclosure of relatively current technology will promote the progress of these technical fields. Publication should also allow for more efficient use of scarce research and development resources by minimizing duplicative research, signaling at an earlier stage promising areas of research, and indicating fields or research topics that are being pursued by others.

For your information, procedures to expedite the processing of patent applications in the energy and environmental fields have been available at the PTO for years. These procedures take the form of "Petitions to Make Special" certain applications and, if granted, the affected applications are given priority in processing throughout the PTO. These procedures should be especially helpful in the context of our 20-year patent term system. To date, however, these procedures have not been taken advantage of to the extent expected. Over the last ten years, petitions have been filed at the rate of 42 per year in the energy field and 78 per year in the environmental field. The petitions are overwhelmingly granted. It is expected that the rate of filing these petitions will rise with the new 20-year patent term.

(2) The vast majority of U.S. patent holders are independent entrepreneurs or small business people. Will patent law changes help or hurt future energy and environmental technology development by small entity inventors?

The statements in this inquiry need to be addressed separately. First, the statement that "[t]he vast majority of U.S. patent holders are independent entrepreneurs or small business

people" is not supported by the evidence. For calendar year 1995, only 28.9% of application filings were by small entities. It is reasonable to expect that patents are, at the most, proportionately granted to small entities. This result is not even close to a "vast majority." Secondly, it is reasonable to expect that all of the above characteristics of an improved patent system will equally apply to future energy and environmental technology development by small entity inventors. The Department of Energy has advised us that they believe "that it is too early to tell what the impact of the legislation would be on its labs and on small businesses in [these] research areas." However, the ability to file provisional applications is a characteristic of our improved patent system that small businesses in these fields should immediately adopt to their advantage. All of the characteristics of early publication would appear to operate to the benefit of small businesses in these fields, as well.

(3) Intellectual property has risen from 10 percent of all U.S. exports in 1947 to over 50 % today. Will patent law changes help or hurt U.S. efforts to gain a larger share of energy and environmental technology export markets?

In light of the fact, noted above, that at least 19 of the top 25 exporters in the United States support both the recently enacted and proposed changes to our patent system, it can be assumed that these changes will lead to greater export markets for these companies, many of whom are involved with energy and/or environmental technologies. This is especially true in light of the corresponding major improvements in the Japanese patent system, a major export market for many of these companies.

I thank the Chairman for inviting me to testify today. If there are questions, I would be happy to answer them at this time. Thank you again.

Chairman ROHRABACHER. Mr. Bibbens, if you would like to proceed.

**STATEMENT OF TERRY BIBBENS, ENTREPRENEUR IN RESIDENCE, OFFICE OF ADVOCACY, SMALL BUSINESS ADMINISTRATION**

Mr. BIBBENS. Thank you, Mr. Chairman and Members of the Subcommittee.

I'm Terry Bibbens, Entrepreneur In Residence in the Office of Advocacy. It's my pleasure to testify today before your Subcommittee on the subject of changes in the U.S. patent policy and their implications for energy and environment research and development.

My testimony today has been approved by, and reflects the independent views of, the Chief Counsel for Advocacy and may or may not represent the views of the Administration. Mr. Glover apologizes that he was not personally able to be present here today, but he has reviewed all of my testimony and supports every word of it.

I would like to come right to the heart of the issues before your Subcommittee and before the Congress today on the changes in H.R. 359, 1732 and 1733.

The issues as they relate to small business are the following three.

Term and certainty of term of the length of the patent protection.

Second, confidentiality of the intellectual property until the patent protection is provided.

And, third, ensuring that small businesses are not disadvantaged by a confrontational process with much larger firms, either from the U.S. or from foreign countries that have disproportionately larger resources.

These issues are vital to the small business, particularly in the energy and environmental technology fields, but frankly in all areas that are appropriate for the Science Committee here, and we appreciate very much the concern of your Subcommittee and the Chairman in bringing these issues as they relate to small business to the attention of the Congress.

The summary comments of the Office of Advocacy are included in an attached letter from the Chief Counsel to the Subcommittee Chair and to the Speaker of the House of Representatives dated April 18th, 1996 included in our testimony here today.

Specifically we oppose the pre-publication provisions of H.R. 1733. We oppose the expanded intervention provisions of H.R. 1732. We support the expanded term provisions of H.R. 359.

Now we've heard the argument that a confrontational process at the front end of the patent process is going to be helpful and that it will result in more robust patents. The argument that has been presented is that by permitting all companies, large and small, to enter into the fray at the beginning of the process will result in fewer court cases after the patents issue. We would agree with the conclusion. However, not because the patents will be more robust, but because small businesses will not be around to have the protection of the courts because they do not have the ammunition to fight that battle.

If the patent application is published before the patent is granted, the applicant will be subjected to competitive pressures before the protection of the patent is provided. What is now a private and privileged relationship between the applicant and the U.S. Patent and Trademark Office will be come a free-for-all in the marketplace and the small businesses would be entering a David and Golaith contest without a sling.

With early publication large companies would look at all of the patents pending and would file reams of prior art to slow down the process. Even if the USPTO ignored them, the large companies would engage in predatory practices and claims against the smaller company before it has the protection of the patent and before it has been able to interest a venture capital investor or other investor or company in joining forces. Without the resources to fight the legal battles with the large company, the entrepreneur would be forced to exceed to their demands or be forced out of business.

I would like to point out that these predatory practices are not only legal, but they're in the best interests of the shareholders of the large companies. Anyone that protests that such practices do not occur is either very naive or disingenuous.

With publication at 18 months and with average pendency of small business patents of over 21 months from data that we've obtained from Mr. Lehman's office would see the death of the innovative small companies that have been the pride of the United States for over 200 years. This is not an overstatement. This is something we believe very strongly, and it is supported by every small business organization we know with letters that they have provided to us.

However, we think there is a way to address the desires of the large companies and their very able advocates in the legal profession who are before you today. They wish to have all patents published after 18 months regardless of the time it take to process the patent.

We interpose no objection to that rule being applied to all large businesses and to foreign companies filing for U.S. patents. We merely offer that patent applications filed by small entities, especially the small businesses as currently defined in the patent legislation and regulations, be exempted from publication until the patent is issued, or a period of 60 months from the date of filing has passed as proposed in your H.R. 359. Applications withdrawn by the applicant would not be published is our recommendation.

We further recommend for those small entities and small businesses that file for foreign patent application, we recommend that they be required to publish in the United States the same information in English that is published in the foreign jurisdiction whenever publication is required in that country. They would not be required to publish their U.S. patent application, only the application in the country of publication.

We believe that these proposals would ensure the elimination of the "submarine" patents, whether they're real or imagined, for all practical purposes. These proposals would ensure protection of diligent small business applicants, provide equal access to published information for U.S. companies compared to their foreign competitors, and would ensure that all patent applications would be pub-

lished five years after filing. We believe that these proposals provide reasonable balances between the protection for the small businesses and the global interests of larger businesses.

Lastly, we support the creative idea provided by the U.S. Patent and Trademark Office to resolve the issue of the 17-year term from grant versus the 20-year term from filing. Their concept of establishing a 24-month maximum cumulative process time for the USPTO would ensure that diligent applicants have a 17-year term.

We have a letter from Mr. Goffney which we've entered into the record here proposing that. I applaud the Commissioner for working to get that below 24 months down to 12 months. So we would interpose no objection if it was lowered below the 24 months.

This extension would be automatic on a day-for-day basis for any period of cumulative processing time at the USPTO over 24 months. This proposal solves the current limitations of the 17-year term from grant which does permit a dilatory applicant to extend the patent protection unfairly.

Small businesses view the process of obtaining patent protection in an entirely different way than large business. To provide a perspective of this statement let me note for the record that I spent over 27 years of my career in small companies, and 10 of those were CEO of my own very successful company, and we had patents. I then spent 10 years running divisions for a defense electronics giant, and we had portfolios of patents in all of those divisions. I've also been involved as a member of the venture capital community as an investor and adviser to small businesses.

Therefore, I understand the process of a very small company, and I understand the process and the mentality and the aggressive capitalistic strong competitive approach of large businesses.

One of the conclusions I would like to point out is that the patents are vital to the process of innovation by small businesses in the energy and environmental technologies. In no other country in the world does innovation flourish as frequently and as successfully as it does in the United States.

We conducted a study on foreign patenting behavior of small and large firms that we contracted in the Office of Advocacy, and they reported that large firms file international patents on almost one half of their inventions. In contrast, small businesses with equally significant inventions, comparing apples to apples in this case, file slightly more than two thirds of patents only in the United States and only one third overseas.

The conclusion of the study was. "This suggests that small businesses with valuable inventions face special barriers in obtaining foreign patent protection because of their limited resources."

We think that's the key problem before you here, that small businesses do not have the resources to fight the battles with large companies with hoards of attorneys.

I would like to conclude my remarks by saying that our comments today are focused specifically on the small business entity. That's our charter, but more importantly that's the area that we understand very much.

We have large companies here, their intellectual properties' attorneys and their associations and multinational firms who have an entirely different perspective on this, and we understand their per-

spective and we interpose no objection to their perspective. We're not going to comment on what is good for them, but we object very much when they tell you and us what is good for small business.

The idea that small businesses want to know more about the patents of other people and therefore they are willing to open theirs is absolutely false from every small business organization that we've ever dealt with. They want to protect theirs until they have a chance to really bring it out to the market with a patent granted by the Patent Office.

Thank you very much, and I would be happy to answer any questions.

[The prepared statement and attachments of Terry Bibbens follow:]

U.S. SMALL BUSINESS ADMINISTRATION
WASHINGTON, D.C. 20416

OFFICE OF CHIEF COUNSEL FOR ADVOCACY

TESTIMONY OF

TERRY E. BIBBENS

ENTREPRENEUR IN RESIDENCE

OFFICE OF ADVOCACY

UNITED STATES SMALL BUSINESS ADMINISTRATION

SUBMITTED TO THE

SUBCOMMITTEE ON ENERGY AND ENVIRONMENT

OF THE COMMITTEE ON SCIENCE

OF THE

HOUSE OF REPRESENTATIVES

MAY 2, 1996

FEDERAL RECYCLING PROGRAM PRINTED ON RECYCLED PAPER

Mr. Chairman and members of the Subcommittee: It is a pleasure for me to testify today before your subcommittee on the subject of "Changes in U.S. Patent Policy and Their Implications for Energy and Environment Research and Development."[1]

I would like to come right to the heart of the issues before your subcommittee and before Congress on the proposed changes in the patent law as envisioned in H.R. 359, H.R. 1732 and H.R. 1733. Those issues are:

1. Term, and certainty of the length of the term, of the patent protection,

2. Confidentiality of the intellectual property until patent protection is provided,

3. Ensuring that small businesses are not disadvantaged by confrontational processes with much larger firms (U.S. and foreign) with disproportionately larger resources.

These issues are vital to small businesses and we appreciate the concern of your subcommittee in protecting the interests of small businesses.

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[1] My testimony has been approved by and reflects the independent views of the Chief Counsel for Advocacy and may or may not reflect the views of the Administration. Mr. Jere Glover, Chief Counsel for Advocacy sends his regrets that he is unable to testify today and he appreciates your support for small business.

The summary comments of the Office of Advocacy are included in the attached letter from the Chief Counsel to the Subcommittee Chair and to the Speaker of the House of Representatives, dated April 18, 1996. Specifically:

> We oppose the pre-publication provisions of H.R. 1733.
>
> We oppose the expanded intervention provisions of H.R. 1732.
>
> We support the expanded term provisions of H.R. 359.

We have heard the arguments that a confrontational process at the front end of the patent process will result in more robust patents. The argument is that permitting all companies, large and small, to comment on all patent applications, from all companies, large and small, will result in fewer court cases after patents issue. We would agree with the conclusions--however, not because the patents will be more robust, but because small businesses will not be around to have the protection of the courts.

If the patent application is published before the patent is granted, the applicant will be subjected to competitive pressures before the protection of the patent is provided. What is now a private and privileged relationship between the applicant and the U.S. Patent and Trademark Office (USPTO) will become a free-for-

all in the marketplace. And the small business would be entering a David and Goliath contest--without a sling.

With early publication, large companies would look at all of the patents pending, and would file reams of "prior art" to slow down the process. Even if the USPTO ignored them, the large companies would engage in predatory practices and claims against the small company before it has the protection of the patent, and has been able to interest a venture capital investor or other company in joining forces. Without the resources to fight the legal battles with the large company, the entrepreneur will be forced to accede to their demands or would be forced out of business. I'd like to point out that such predatory practices are not only legal, they are in the best interests of the shareholders of the large companies. Anyone that protests that such practices do not occur is either very naive or disingenuous.

With publication at 18 months, and the *average* pendency of small business patents of over 21 months,[2] we would see the death of the innovative small companies that have been the pride of the United States for over 200 years. This is not an overstatement, we believe it is a fact. And it is supported by every small business organization we know.

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[2] Information provided by the USPTO to the Office of Advocacy for small entity (small business) patents for the period July to September 1995.

However, we believe that there is a way to address the desires of the large companies, and their very able advocates in the legal profession. They wish to have all patents published after 18 months, regardless of the time it takes to process the patent. We interpose no objection to that rule being applied to all large businesses, and to foreign companies filing for U.S. patents. We merely offer that patent applications filed by small entities, especially small businesses (as currently defined in patent legislation and regulations) be exempted from publication until the patent is issued, or a period of 60 months from the date of filing has passed as proposed in H.R. 359. Applications withdrawn by the applicant would not be published.

Further, for those small entities and small businesses that file for foreign patent protection, we recommend that they be required to publish in the United States the same information (in English) that is published in the foreign jurisdiction whenever publication is required in that country. They would not be required to publish their U.S. patent application, only the application in the country of publication.

We believe that these proposals will ensure the elimination of the "submarine" patents, whether real or imagined, for all practical purposes. They ensure protection of diligent small business applicants, provide equal access to published information for U.S. companies compared to their foreign

competitors, and ensure that all patent applications would be published five years after filing. We believe that these proposals provide reasonable balances between the protection for the small businesses and the global interests of larger businesses.

Lastly, we support the creative idea provided by the U.S. Patent and Trademark Office (USPTO) to resolve the issue of the 17-year term from grant versus the 20-year term from filing. Their concept of establishing a 24 month maximum cumulative processing time for the USPTO would ensure that diligent applicants had a 17-year term. The extension would be automatic on a day-for-day basis for any period of cumulative processing time at the USPTO over 24 months. This proposal solves the current limitations of the 17-year term from grant which permits a dilatory applicant to extend the patent protection unfairly.

Small businesses view the process of obtaining patent protection in an entirely different way than large businesses. To provide a perspective of this statement, let me note for the record that I spent over 27 years of my career in small companies, ten of those as CEO of my own very successful defense electronics company. And we had patents. Then I spent ten years running divisions for a defense electronics giant. And we had portfolios of patents at every division. I have also been involved as a member of the venture capital (VC) community as investor and advisor to Small

Business Investment Companies (SBICs) and other VC firms. Therefore, I bring first-hand knowledge of the business practices and concerns of both large and small businesses, and of their investors.

To a small business, the patent provides the leverage to enter into a market where large businesses have all of the advantage--except for that all important patent. To a large business, adding patents to the already existing portfolio of patents and trade secrets is one of many tools in the fight for market share on a global basis.

In other words, to the small business person, the patent is viewed as a vital singular event to allow the company to pursue the particular product developed through the genius of the inventor. That is one of the reasons that small businesses are so extraordinarily successful at bringing significant new products to market. The inventor is often the leader of the business, and bringing the product to market becomes an all-consuming passion.

Without a patent, the inventor is merely another bright entrepreneur with an interesting idea, but no barrier to entry for competitors. This is of little interest to the venture capital community. But, with a patent, the product and company are much more interesting to the VCs. Now they are willing to

consider investing in the company, and once involved, they are willing to assist in protecting their investment from competitors, large and small.

As requested, I have addressed my comments today on the impact of patent law changes on small businesses in the three issues raised in the Hearing Charter:

1. How will patent law changes affect patents generated by energy and environmental research at federal facilities?

2. Will patent law changes help or hurt future energy and environmental technology development by small entity inventors?

3. Will patent law change help or hurt U.S. efforts to gain a large share of energy and environmental technology export markets?

I have focused today on the small business issues for two reasons:

1. That is our charter, and the area where we have received comments from the trade associations.

2. The large companies, intellectual properties attorneys and their associations, and multi-national firms have an entirely different perspective on patents, and I respect their right to advocate their own issues. It would be as inappropriate for me to comment on what is good for them, as I feel it is for them to tell you what is good for small business.

Let me state unequivocally that patents are vital to the process of innovation by small businesses in the energy and environmental technologies. (And for that matter, in every other field of technology and innovation.) In no other country in the world does innovation flourish as frequently or successfully as it does in the United States. The nation's success in innovation is in large part facilitated by the U.S. patent system.

A recent study of "Foreign Patenting Behavior of Small and Large Firms"[3] contracted by the Office of Advocacy reported that large firms file international patents on almost one-half of their inventions. In contrast, small firms, with equally significant inventions, file slightly more than two-thirds of their patents *only* in the U.S. As concluded in the summary of the report:

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[3]"Foreign Patenting Behavior of Small and Large Firms," Mogee Research and Analysis Associates, March 6, 1966; Contract No. SBA-8140-0A-94, for Office of Advocacy, U.S. SBA.

"This suggests that small businesses with valuable inventions face special barriers in obtaining foreign patent protection because of their limited resources."

This study provides additional details on the behavior of large and small firms patents in various technology sectors, including the energy and environmental areas.

We believe that protection of the intellectual properties of small businesses via patents, copyrights and trademarks (as well as trade secrets), is a fundamental cornerstone of the economic well-being of the United States of America. The patent system in America has served this country and our small businesses well for over 200 years.

As envisioned by our nation's founders, patents encourage the introduction of new technologies into the marketplace--and we've seen wonderful new innovations introduced in the environmental and energy fields from small businesses, including as detailed in the latest Annual Report of the President on Small Business:[4]

Air Conditioning

Catalytic Petroleum Cracking

Heat Sensor

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[4] "The State of Small Business, A Report of The President, 1994," page 114, published by the Office of Advocacy, SBA, ISSN:0735-1437, ISBN: 0-16-048045-0, available from the U.S. GPO.

Microprocessor

Personal Computer

Prestressed Concrete

Prefabricated Housing

Rotary Oil Drilling Bit

Stereoscope Map Scanner

Supercomputer

and literally thousands more. As noted in this annual report, small firms produce twice as many product innovations per employee as large firms--in every field of technology. They also produce twice as many significant innovations per employee as large firms. With small companies having slightly over half of the total employment in the private sector, this is an important difference to our nation.

To the small company, almost always starved for cash, the patent provides a guarantee that the U.S. Government will provide an exclusive right to the company to pursue the market. That pursuit may take the path of direct marketing, or of licensing to larger companies. But the important issue before you now, is that the path selected is the choice of the inventor--TODAY.

The patent process is so critical to small businesses, to the innovative process of the United States, and to our global competitiveness, that our basic position on these issues is that

we should err on the side of protecting the inventor. Given this track record, changes to the patent laws should only be made where there is a well defined problem to cure and where the remedies selected cure the problem without dampening the inventive spirit of the nation's innovators.

We've had a process of patents and innovation in the United States for over 200 years, and the details have not changed for over 133 years. It has produced an engine of creativity that is the envy of the world.

The delegates to the 1995 White House Conference on Small Business passed two recommendations on this topic as follows:

> **Recommendation Number 115:** "...We further recommend that Congress protect international patent rights in a way that takes into account the needs of small business, including retaining the patent term to run for twenty years from date of application or seventeen years from date of issue, whichever is longer, that patent application remain unpublished until the patent is granted, and that the patent remains with the first to invent rather than the first to file."

**Recommendation Number 265:** "...Congress and the U.S. Patent Office should also implement an enforceable and universal intellectual property (patent, trademark, and copyright) application with all members of the World Trade Organization, while maintaining "first to invent...."

With the foregoing as background, we offer the following comments on the referenced bills:

**Pre-publication:** We are concerned that the provision of H.R. 1733 to require publication of the patent application 18 months after filing would be detrimental to small businesses. Since the patents for most small firms do not issue until well after the 18-month period, publication of the application before the patent issued would facilitate interference by the patent applicant's competition during this critical and vulnerable stage. This would have negative impacts on the ability of small companies to provide creative and innovative solutions to the energy and environmental (and all other) technology markets. This would also limit their ability to gain larger shares of the export markets. We therefore oppose pre-publication of applications by small businesses.

This pre-publication provision would have a negative impact on the research conducted at federal laboratories in all technology

areas, including energy and the environment, since much of the advanced work is performed by small companies as reported by GAO.[5]

**Third Party Intervention:** The expanded third party intervention provisions of H.R. 1732 and H.R. 1733 would place small businesses at a serious disadvantage as follows:

> **H.R. 1732:** Affording third parties opportunity for greater participation in reexamination proceedings,
>
> **H.R. 1733:** Affording third parties opportunity under the pre-publication provisions to file comments and opposition to grant.

Together, the greatly expanded intervention procedures of these two bills would have serious negative impacts on the ability of small businesses to contribute to the innovation process of the United States, in all technology fields, including the energy and environment technologies. It would also impact negatively on the ability of small businesses to gain a larger share of the energy

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[5] GAO report on "Preliminary Information on the Small Business Technology Transfer Program," dated January 1996 (GAO/RCED-96-19) and GAO report "Interim Report on the Small Business Innovation Research Program," dated March 1995 (GAO/RCED-95-59), and GAO reports (GAO/RCED-89-39, GAO/RCED-89-173, and GAO/RCED-92-37) referenced therein.

and environmental (and all other) technology export markets. We therefore oppose these expanded intervention provisions.

These enhanced intervention provisions would have a negative impact on the research conducted at federal laboratories in all technology areas, including energy and the environment, for the reasons stated above.

**Patent Term:** The provisions of H.R. 359 that require the patent coverage be the longer of 20 years from date of filing or 17 years from the date of issue are beneficial to small businesses. As a general rule, the length of time for a patent is of critical importance to small businesses, and they prefer the longest possible period of coverage for the patents. We therefore support the expanded term provisions in H.R. 359.

We believe that inventions subject to secrecy orders by the U.S. Government should not have any limitation on the extension of their term, but should have a term that extends for 20 years from the date of release of the secrecy order.

The position of this office is based on:

1. The recommendations of, and communications with, delegates to the 1995 White House Conference on Small Business,

2. Letters and meetings with small business industry and trade associations,

3. The results of numerous studies and research reports on innovation and patents prepared for and by the Office of Advocacy,

4. Our personal business experience.

Thank you for the opportunity to present the views of our office and the many small business associations that have requested our support on this issue. We would be pleased to answer any questions from the Subcommittee.

U.S. SMALL BUSINESS ADMINISTRATION
WASHINGTON, D.C. 20416

OFFICE OF CHIEF COUNSEL FOR ADVOCACY

April 18, 1996

Honorable Newt Gingrich
Speaker of the
House of Representatives
Washington, DC 20515

Honorable Dana Rohrabacher
House of Representatives
Washington, DC 20515-0145

Subject: Office of Advocacy's position with regard to intellectual property rights for small businesses.

Reference: 1. H.R. 359
2. H.R. 1732
3. H.R. 1733

Dear Mr. Speaker and Congressman Rohrabacher:

This is in response to your March 22, 1996 letter requesting information on the position of this Office with regard to intellectual property and the important role it plays in the development and maintenance of small business. As requested, this response is addressed to both of you.[1]

One of the functions of the Office of Advocacy is to inform Congress of the impact of legislative proposals on small business. The patent process is so critical to small businesses, to the innovative process of the United States, and to our global competitiveness, that our basic position on these issues is that we should err on the side of protecting the inventor.

In no other country in the world does innovation flourish as frequently or successfully as it does in the United States. The nation's success in innovation is in large part facilitated by the U.S. patent system. We believe that protection of the intellectual properties of small businesses via patents, copyrights and trademarks (as well as trade secrets), is a fundamental cornerstone of the economic well-being of the United States of America. The patent system in America has served this country and our small businesses well for over 200 years.

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[1] This letter reflects the independent views of the Chief Counsel for Advocacy and may or may not reflect the views of the Administration.

Given this track record, changes to the patent laws should only be made where there is a well defined problem to cure and where the remedies selected cure the problem without dampening the inventive spirit of the nation's innovators. What most concerns small business are:

1. Term, and certainty of the length of the term, of the patent protection,

2. Confidentiality of the intellectual property until patent protection is provided,

3. Ensuring that small businesses are not disadvantaged by confrontational processes with much larger firms (U.S. and foreign) with disproportionately larger resources.

The present procedure keeps the pre-issuance discussions between the U.S. Patent and Trademark Office (USPTO) and the inventor as private and privileged communications. During the review of the patent application by the USPTO many small businesses are in a very vulnerable position -- to larger competitors both from the U.S. and from abroad. They usually do not have the resources to fight a large company in the marketplace until they have the protection provided by the issuance of a patent. The patent allows them to obtain additional investment, often venture capital, to pursue product development and market penetration. It also provides them with stronger legal protection if they desire to achieve commercialization of their technologies via licenses and royalties from larger firms that are already entrenched in the markets.

There may be isolated instances of abuse under the current system that need to be corrected without instituting a major overhaul of the patent system that places small firms at a competitive disadvantage with large firms in the U.S and abroad. Breakthrough technologies usually take more than 18 months from filing to issuance of the patent. Small businesses would be particularly vulnerable during this period if their patent application was published.

The delegates to the 1995 White House Conference on Small Business passed two recommendations on this topic as follows:

> **Recommendation Number 115:** "...We further recommend that Congress protect international patent rights in a way that takes into account the needs of small business, including retaining the patent term to run for twenty years from date of application or seventeen years from date of issue, whichever is longer, that patent application remain unpublished until the patent is granted, and that the patent remains with the first to invent rather than the first to file."

> **Recommendation Number 265:** "...Congress and the U.S. Patent Office should also implement an enforceable and universal intellectual property (patent, trademark, and copyright) application with all members of the World Trade Organization, while maintaining "first to invent...."

With the foregoing as background, we offer the following comments on the referenced bills:

**Pre-publication:** We are concerned that the provision of H.R. 1733 to require publication of the patent application 18 months after filing would be detrimental to small businesses. Since the patents for most small firms do not issue until well after the 18-month period, publication of the application before the patent issued would facilitate interference by the patent applicant's competition during this critical and vulnerable stage. We therefore oppose pre-publication of applications by small businesses.

**Third Party Intervention:** The expanded third party intervention provisions of H.R. 1732 and H.R. 1733 would place small businesses at a serious disadvantage as follows:

> **H.R. 1732:** Affording third parties opportunity for greater participation in reexamination proceedings,
>
> **H.R. 1733:** Affording third parties opportunity under the pre-publication provisions to file comments and opposition to grant.

Together, the greatly expanded intervention procedures of these two bills would have serious negative impacts on the ability of small businesses to contribute to the innovation process of the United States. We therefore oppose these expanded intervention provisions.

**Patent Term:** The provisions of H.R. 359 that require the patent coverage be the longer of 20 years from date of filing or 17 years from the date of issue are beneficial to small businesses. As a general rule, the length of time for a patent is of critical importance to small businesses, and they prefer the longest possible period of coverage for the patents. We therefore support the expanded term provisions in H.R. 359.

The position of this office is based on:

1. The recommendations of, and communications with, delegates to the 1995 White House Conference on Small Business,

2. Letters and meetings with small business industry and trade associations,

3. The results of numerous studies and research reports on innovation and patents prepared for and by the Office of Advocacy,

4. Our personal business experience.

We have recently had several discussions with the USPTO in an effort to resolve the issues raised in these three bills. While we are pleased with the progress of these talks and hopeful we can resolve these issues, we have not been able to do so yet.

Sincerely,

Jere W. Glover
Chief Counsel

UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office
ASSISTANT SECRETARY AND COMMISSIONER
OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

MAR 13 1996

Mr. Jere Glover
U.S. Small Business Administration
409 Third Street, S.W.
Washington, D.C. 20416

Dear Jere:

Attached please find my proposed changes to H.R. 1733 and some additional information concerning pendency rates. I have reviewed these modifications with the Commissioner and our Office of Legislative and International Affairs. I hope you will find this information helpful.

If you have any questions concerning this material, please do not hesitate to call me at (703) 305-8700.

Sincerely,

Lawrence J. Goffney, Jr.
Acting Deputy Assistant Secretary of Commerce and
Deputy Commissioner of Patents and Trademarks

## LJG's Proposed Changes to H.R. 1733

• Include in H.R. 1733, section 8, a further definition of what may constitute an "unusual administrative delay." This would provide a clearer indication of what is to be expected of the PTO in terms of processing patent applications - to the extent that PTO processing cumulatively exceeded 24 months, an extension based on "unusual administrative delay" would be automatic. Other grounds for "unusual administrative delay" would be set by rulemaking. Suggested language to effect this change follows:

(b) Term Extension. --

(1) Basis for Patent Term Extension. --
Subject to the limitations of paragraph (2) of this subsection, if the issue of an original patent is delayed due to--
(A) a proceeding under section 135(a) of this title,
(B) the imposition of an order pursuant to section 181 of this title,
(C) appellate review by the Board of Patent Appeals and Interferences or by a Federal court where the patent was issued pursuant to a decision in the review reversing an adverse determination of patentability, or
(D) an unusual administrative delay by the Office in issuing the patent, **including the failure to issue a patent within a period of time such that cumulative Office processing time exceeded 24 months, not including proceedings in subparagraphs (A) through (C), above,** the term of the patent shall be extended for the period of delay. The commissioner shall prescribe regulations to govern the determination of the period of delay and the particular circumstances deemed to be an unusual administrative delay.

***

• Include in H.R. 1733, section 2, in section 122(b)(1), a statement that acknowledges the international aspect of patent application publication. To the extent that an application for patent in the United States is of foreign origin or is subsequently filed in any major foreign patent system, it will be published 18 months from its earliest effective filing date. Suggested language to effect this change follows:

(b)(1) Subject to paragraph (2), each application for patent, except applications for design patents under Chapter 16 of this title and provisional applications filed under section 111(b) of this title, shall be published, in accordance with procedures as determined by the Commissioner, as soon as possible after the expiration of a period of 18 months from the earliest filing date for which a benefit is sought under this title **or at such time that an application upon which priority under section 119(a) of this title is based would be published in a foreign country, whichever is later,** except that an application that is no longer pending shall not be published and an application that is subject to a secrecy order pursuant to section 181 of this title shall not be published. An application may be published earlier than the above date at the request of the applicant. No information concerning published patent applications shall be made available to the public except as the Commissioner shall determine. Notwithstanding any other provision of law, a determination by the Commissioner to release or not to release information concerning a published patent application shall be final and nonreviewable.

• Modify H.R. 1733, section 4, on Provisional Rights, to refer to the rights accorded upon publication "royalty rights" throughout this section. Additionally, a clarification of which claims give rise to the "royalty rights" is provided. Suggested language to effect these changes follows:

SEC. 4. ROYALTY ~~PROVISIONAL~~ RIGHTS.

Section 154 of title 35, United States Code, is amended by adding the following new subsection:

"(d) **ROYALTY** ~~PROVISIONAL~~ RIGHTS - In addition to other rights provided by this section, a patent shall include the right to obtain a reasonable royalty from any person who, during the period from publication of the application for such patent pursuant to subsection 122(b) of this title or from international publication of an international application designating the United States until issue of that patent, --

"(1)(A) makes, uses, offers for sale, or sells in the United States the invention as claimed in the ~~published~~ patent application **upon publication or as amended thereafter** or imports such an invention into the United States; or

"(B) if the invention as claimed in the ~~published~~ patent application **upon publication or as amended thereafter** is a process, uses, offers for sale, or sells in the United States or imports into the United States products made by that process as claimed in the ~~published~~ patent application **upon publication or as amended thereafter**; and

"(2) had actual notice ~~or knowledge~~ of the **invention as claimed in the** ~~published~~ patent application **upon publication or as amended thereafter**.

The right to obtain a reasonable royalty shall not be available under this subsection unless the invention claimed in the patent is identical to the invention as claimed in the ~~published~~ patent application **upon publication or as amended thereafter**. The right to obtain a reasonable royalty under this subsection shall not be affected by the duration of the period from publication of the application until issue of the patent. The right to obtain a reasonable royalty for that period shall be available only within six years of issue of the patent. The right to obtain a reasonable royalty based upon the international publication of an international application designating the United States shall commence from the date that the Patent and Trademark Office receives a copy of the international publication of the international application, unless already communicated by the International Bureau, or, if the international publication of the international application is in a language other than English, from the date that the Patent and Trademark Office makes a translation thereof available to the public. The Commissioner may require the applicant to provide a copy of the international publication of the international application and a translation thereof.".

• Include in H.R. 1733, section 8, an exception to the limitation on maximum period of extensions for secrecy orders. That is, the limitation of the maximum period of extensions should not apply to secrecy orders. Suggested language to effect this change follows:

(2) LIMITATIONS.-

"(A) MAXIMUM PERIOD OF EXTENSION.-The total duration of all extensions of a patent under this subsection shall not exceed 10 years. To the extent that periods of delay attributable to grounds specified in paragraph (1) overlap, the period of any extension granted under this subsection shall not exceed the actual number of days the issuance of the patent was delayed. The **10 year maximum limitation shall not apply to extensions for delays due to the imposition of an order pusruant to section 181 of this title.**

FAOMPEND

**PENDENCY TO FAOM FOR JULY TO SEPTEMBER 1995 (MONTHS)**

| ENTITY | TYPE | PEND | COUNT |
|---|---|---|---|
| LARGE ENTITY | LARGE ENTITY | 8.76 | 32957 |
| SMALL ENTITY | INDIVIDUAL | 8.05 | 9784 |
| SMALL ENTITY | NONPROFIT | 11.11 | 835 |
| SMALL ENTITY | SMALL BUSINESS | 9.81 | 5287 |
| TOTAL | | 8.75 | 48863 |

**PENDENCY TO DISPOSAL (MONTHS)**

| | | ABANDON | | PATENTED | | TOTAL DISPOSALS | |
|---|---|---|---|---|---|---|---|
| | | PEND | COUNT | PEND | COUNT | PEND | COUNT |
| LARGE ENTITY | LARGE ENTITY | 17.77 | 11218 | 22.18 | 18546 | 20.52 | 29764 |
| SMALL ENTITY | INDIVIDUAL | 15.51 | 4598 | 19.53 | 5528 | 17.70 | 10126 |
| SMALL ENTITY | NONPROFIT | 22.45 | 361 | 26.20 | 453 | 24.54 | 814 |
| SMALL ENTITY | SMALL BUSINESS | 18.27 | 2108 | 21.28 | 3463 | 20.14 | 5571 |
| TOTAL | | 17.35 | 18285 | 21.61 | 27990 | 19.93 | 46275 |

U.S. Small Business Administration
Office of Advocacy

March 1996

# Foreign Patenting Behavior of Small and Large Firms

*A research report completed by Mogee Research and Analysis Associates, under contract to the U.S. Small Business Administration's Office of Advocacy*

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# Foreign Patenting Behavior of Small and Large Firms

## Final Report

March 5, 1996

Prepared for the U.S. Small Business Administration under Contract No. SBA-8140-OA-94. The findings and recommendations stated in this report are those of the authors and do not necessarily represent the positions and policies of the U.S. Small Business Administration.

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## EXECUTIVE SUMMARY

The objective of this research was to determine whether small firms patenting in the same fields of technology, and with equally or more valuable inventions, patent them as broadly as large firms or are inhibited due to resource constraints or other reasons. Previous research suggested that small firms patent their inventions in fewer countries than larger firms. This research examined the propensity to file patent applications outside the United States for an invention, conditional on having filed in the United States, and the number of countries in which patent applications were filed. The analysis was conducted on 2,751 matched pairs of small and large business U.S. patents issued in 1988.

The analysis revealed that small business patents are less likely to be filed abroad than large business patents, a difference that holds across all technology areas. When only the highest-value patents within each technology area are considered, a smaller proportion of small business patents is still filed abroad in the majority of technology areas. Small and large business patents that are filed abroad, however, are quite similar in the number of countries in which applications are filed, a similarity that holds across most technology areas. When the highest-value patents in each technology area are considered, there is no difference between small and large companies in number of countries in which patent applications are filed in most technology areas.

The factors of technology area and value seem to account fairly well for differences between small and large companies in the number of countries in which patent applications are filed. That is, when small and large business patents of the same value and in the same field of technology are filed abroad, they are filed in about the same number of countries. The factors of technology and value account less well, however, for the difference in the proportion of small and large business patents that is filed abroad. The tendency of small companies to patent fewer inventions abroad, even when they are of very high value, across a majority of the technology areas suggests that this effect is strong and arises from factors associated with the small size of the firm, such as cost and related factors. Interviews revealed that the main reason small businesses do not patent abroad is that they do not have foreign sales or major foreign competitors. This suggests that the relevant difference may not be so much between small and large businesses as it is between companies that engage in international business and those that do not.

Interviews also revealed that small companies that file foreign patent applications often encounter problems, mainly cost and difficulties in getting adequate protection. Although they face the same problems, large companies have more resources to deal with them than do small businesses. This suggests that small businesses with valuable inventions face special barriers in obtaining foreign patent protection because of their limited resources.

## INTRODUCTION AND PURPOSE

The globalization of technology and the growing importance of high-technology products to business increases the importance of having intellectual property protection in many countries. Firms often must patent their inventions in many countries to protect their technology and derive sufficient income from the inventions to offset research and development (R&D) costs and retain adequate profit. Preliminary evidence has suggested that small firms patent their inventions in fewer countries than larger firms. This research investigated differences in foreign patenting by small and large firms and possible explanatory factors such as value of the inventions, field of technology, or resource constraints. The objective was to determine whether small firms working in the same technological fields and with equally or more valuable inventions are able to patent them as broadly as large firms, or are inhibited due to resource constraints or other reasons. The research was undertaken in the belief that the findings would be relevant to U.S. government policies and programs aimed at increasing exports and to international patent treaty negotiations which could reduce the cost to US small firms of patenting in foreign countries.

## BACKGROUND

Patenting in foreign countries is of increasing importance to U.S. firms. With the globalization of trade, it is often necessary for a firm to patent its inventions in many countries in order to protect its technology and to derive sufficient income from the inventions to offset the costs of R&D and retain an adequate profit. However, the filing, prosecution, and maintenance of foreign patent applications is costly; it has been estimated that it may cost $140,000 to patent an invention in the U.S., Japan, and 10 European countries, not including the renewal fees.[1]

Previous research has suggested that small firms patent their inventions in fewer countries than larger firms. A study of 1974 international patenting found that small firms patented their inventions on average in fewer countries than did large firms.[2] There are a variety of reasons why small firms might not patent as much abroad as large firms. Patents belonging to small firms may be of lower value--i.e., economic benefit. Theoretically, firms would file applications for lower value patents in fewer countries (since one would expect them to stop filing additional applications when the cost of the next filing exceeds the benefit of protection).

However, there are grounds to expect the patented inventions of small firms to be more, rather than less, valuable than those of large firms. Previous research has shown that small firms are more innovative than large firms on a per employee basis and have an

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[1] Private conversation with the C.E.O. of Competitive Technologies, Inc.

[2] J. Putnam, "What Can We Really Learn From International Patent Systems?" (unpublished manuscript, 1991).

innovative advantage in high technology.[3] More direct evidence on the value of small business patents came from an analysis of renewal rates for the 1974 panel of international patents. Once a patent right is granted, most countries require its owner to pay annual renewal fees in order to keep the right in force. These fees rise with time, running in some cases to the thousands of dollars annually. Theoretically, one would expect firms to maintain patents only as long as the anticipated economic benefit to the firm is higher than the renewal fee. Analysis of the 1974 renewal data indicated that small firms renew their patents for longer periods than do large firms, thus indicating that small firm patents are on average more valuable than those of large firms.[4]

Alternatively, perhaps small firms tend to invent in certain technologies where patent protection is not important or where foreign markets and competition are not critical. There is no evidence directly on this question, although there is considerable evidence that patent protection is most important in pharmaceutical and specialty chemical technologies, somewhat less important in industrial chemicals, still less important in mechanical technologies, and least important in electrical/electronic technologies.[5]

In the above cases, lack of foreign patenting by small firms would not necessarily be a problem. If, on the other hand, small firms are inhibited from filing foreign patent applications solely because of cost-related factors or the perceived inability to get fair treatment in the patent process of foreign countries, this would be regarded as a problem that reduces the economic benefit small firms obtain from their inventions and reduces their contribution to U.S. economic growth and welfare.

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[3] See, for example, K.L. Edwards and T. Gordon, "Characterization of Innovations Introduced on the U.S. Market in 1982," prepared for the Small Business Administration, Office of Advocacy; Z. Acs and D.B. Audretsch, Innovation and Small Firms (Cambridge, MA: MIT Press, 1990); Gellman Research Associates, Indicators of International Trends in Technological Innovation, prepared for the National Science Foundation, 1976; C. Freeman, The Economics of Industrial Innovation (Baltimore: Penguin Books, 1974).

[4] J. Putnam, 1991, op. cit.

[5] R. Levin, A. Klevorick, R. Nelson, and S. Winter, "Survey Research on R&D Appropriability and Technological Opportunity," Brookings Papers on Economic Activity, 3, 1987: 783-820; E. Mansfield, "Patents and Innovation: An Empirical Study," Management Science, (Feb. 1986): 173-181; C.T. Taylor and Z.A. Silberston, The Economic Impact of the Patent System, (Cambridge: Cambridge University Press, 1973). See also, J. Lerner, "Patenting in the Shadow of Competitors," Journal of Law & Economics, Oct. 1995.

The research described here addressed whether there are, in fact, differences in the foreign patenting of small and large U.S. firms and, if so, whether they are attributable to inherent factors such as value of the inventions or field of technology, or whether they are due to factors such as resource constraints. If the results show that small firms working in the same technological fields as large firms and with equally or more valuable inventions are not able to patent them broadly due to resource constraints, that would raise concern for whether market imperfections are depriving small firms and the US national economy of possible economic benefits from those inventions.

Research Questions

The research set out to address the following questions:

(1) Do patented inventions of small and large U.S. firms differ in the number of foreign patent applications that are filed for them?

(2) If there is a relationship between firm size and extent of foreign patenting, does it hold up when value of the patent and field of technology are held constant?

(3) What are other possible reasons for observed differences in foreign patenting behavior in small and large firms?

During the project, the third question was revised as follows:

(3) What are reasons for observed differences between small firms that patent abroad and those that do not?

## DATA AND METHODOLOGY

Foreign patenting was analyzed using international patent family data--i.e. data on patent publications[6] in different countries that cover the same invention. Patent citations--i.e. references to the sample patents from subsequent patents--were used to measure the value of patents. Interviews with selected small patenting firms were used to examine other factors that affect the breadth of foreign patenting by small firms.

In order to compare foreign patenting practices of small and large businesses, a data set of matched pairs of small and large business patents was constructed. This was done by taking all U.S. patents issued to small businesses in 1988 and matching each of these patents to a randomly selected large business patent that was issued on or about the same date and

[6] A patent publication may be an issued patent (as in the case of the U.S.) or a published patent application (as in the case of most other countries).

pertained to the same field of technology. The year 1988 was chosen because patents issued in that year would be old enough to have accumulated significant numbers of citations and have complete international families, yet still be recent enough to have relevance to current policy questions.

The process of identifying U.S. patents issued to small and large businesses began with two lists of patent numbers supplied by the United States Patent & Trademark Office (USPTO). The USPTO offers lower patent filing fees to small businesses, individual inventors, and not-for-profit organizations. The USPTO supplied a list of 5,569 U.S. patents issued in 1988 that claimed small business status at the time of filing, as well as a list of 56,098 1988 U.S. patents that did not claim small business, individual, or not-for-profit status at the time of filing. It was assumed that the latter set represented the patent applications filed by large businesses. These two sets of patents included patents issued to foreign as well as U.S. companies.

A search was then conducted on MicroPatents' **U.S. PatentSearch** CD-ROM database for all U.S. patents issued in 1988 that gave a U.S. address for the first inventor listed on the patent. This database contains the front page information from patents issued by the USPTO since 1975. Each patent record in the database includes: the patent number, assignee (owner) name, inventor names, state or country of residence of the first-named inventor, issue date, application date, title, abstract, U.S. Patent Classifications (USPC), International Patent Classification (IPC), and references to earlier U.S. patents, foreign patents, and non-patent literature. The search resulted in 40,695 hits that were downloaded and put into a separate database. The two lists of patent numbers obtained from the USPTO were matched to this database resulting in a set of 3,573 1988 small business patents issued to a U.S. inventor, and a set of 24,893 1988 large business patents issued to a U.S. inventor. The set of small business patents was then searched in the **Derwent World Patents Index (Latest) (WPIL)**. WPIL is an on-line database of international patenting published by Derwent Publications Ltd. WPIL contains records on patent publications[7] from 33 major patent-issuing countries and regional authorities such as the European Patent Office. The data in WPIL are organized into "patent families." A patent family consists of all the patent publications that have been published by various countries or authorities pertaining to a particular invention. Patents in a family are linked together through the "priority" details. Priority is constituted by the original application date assigned in the first country in which the invention is filed for protection. Under the Paris Convention, if an application for protection of the invention is filed in another country within one year of the original filing, the patent can claim the original priority. Having the earlier priority date can be important in cases involving disputes over who should be awarded a patent. Small business patent families that showed a priority country other than the U.S. were eliminated.

[7] See footnote 6 above for definition of patent publications.

Each WPIL record contains an English-language title and abstract for the invention, inventor and patent assignee names, a list of countries in which patent protection has been sought or granted and the dates these occurred, International Patent Classifications and Derwent Manual codes (both technology classifications), and patent examiner references for European Patent Office (EPO) and Patent Cooperation Treaty (PCT) patents. Data from WPIL were used to determine whether applications had been filed for protection in foreign countries and, if so, in how many countries applications had been filed.

For various reasons (such as re-issues of patents and patents that are continuations-in-part of earlier patents) some patent numbers can appear in multiple patent families in WPIL. For these reasons the search of 3,573 U.S. patents issued to small businesses yielded 3,645 records that were downloaded from WPIL.

Because patent rights can be sold and a company's status can change between the date a patent application is filed and the date a patent issues, a review was conducted of all the WPIL records downloaded for the set of small business patents. It was found that 155 of these records were solely or jointly assigned to either a large business, foreign company, not-for-profit organization, government agency, or university. These records were discarded from the data set. An additional 152 records were found to have a pre-1988 U.S. patent in the family. These records were also discarded because they represent older patent families that have had more time to accumulate citations than the rest of the records in our set.

This left 3,338 U.S. small business patents to match with the set of large business patents. An attempt was made to match each of these patents to a large business patent issued on the exact same date and assigned the same U.S. Patent Class (USPC) as the original reference (i.e., the primary technology classification) by U.S. patent examiners. The date match was intended to give both patents the same amount of time to accumulate citations. The USPC match was intended to account for possible different citation patterns in different technologies. An exact date and USPC match was found for 2,316 of the small business patents. The remaining small business patents were matched to the next most recently issued large business patent in the same U.S. Patent Class.[8] No matches could be found for the original references on about 50 patents, and for these an attempt was made to find a match to one of the cross-references (i.e., secondary technology classifications) on the small business patents. This process resulted in 3,312 pairs of matching large and small business patents (no match by the original or cross-referenced U.S. Classes could be found for 26 of the small business patents).

The 3,312 matched large business patent numbers were searched in WPIL, resulting in 3,501 patent families that were downloaded. These records were reviewed to remove

[8] Since all patents were issued in 1988, the largest theoretical difference in age of the matched patents is slightly less than one year. About 80% of the matched patent pairs are in the same original classification (USPC) and issued within two weeks of each other.

records assigned to small businesses, universities, government agencies, not-for-profit organizations or individuals. Also removed were records with a pre-1988 U.S. patent in the family and records with a non-U.S. priority country. Due to budget and time constraints, no attempt was made to re-match the small business patents that were paired with large business patents that were dropped from our data set for one of the above reasons. The end result of this process was a final set of 2,751 matching pairs of small and large U.S. patent families for analysis.

VARIABLES

International Patent Families

As discussed above, the collection of patent publications in different countries covering a single invention make up an invention's "patent family." In general, a patent offers protection only in the country in which it is issued, and thus, in order to protect an invention in multiple countries, separate patent applications must be filed in each country where protection is desired. An exception to this is the European Patent Office (EPO), which allows applicants to "designate" (i.e., seek protection) in multiple European countries with a single application.

Of particular interest to this project was the question of whether small businesses patent outside the United States, or limit their patenting to this country. Therefore a distinction was made between domestic-only and international patent families. Domestic-only patent families were defined as patent families covering inventions for which protection has only been sought in the U.S. International patent families were defined as those patent families with published patent documents in foreign countries (in addition to the U.S.). Distinguishing between domestic-only and international patent families allows for comparisons of the propensity of small and large businesses to seek patent protection abroad, and controlling for this propensity in the analyses of patent family sizes, as will be seen later.

Patent Family Size

Also of interest to this study was the number of countries in which patent applications are filed for an invention, because this represents the number of countries in which the patent owner expects that it may profitably exploit its invention.[9] The number of countries in which protection has been sought for an invention was measured by a variable called patent family size and was calculated by counting the number of countries represented by patent publications in the family.

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[9] In some respects it represents an upper bound on the returns the patent owner can expect because the owner may file a patent application but not receive appreciable returns on the invention in a particular country for a variety of reasons.

Some countries such as Germany and Japan have multiple publication stages in their patenting process, which are typically called A, B, and C publications. If a family contained A and B publications from Germany, for example, only one country was counted. Patents published by the EPO were broken down into their "designated states," and counted as patent documents published in those countries. For example, an EPO patent which was designated for France and Germany was counted as both a French patent publication and a German patent publication.

Weighted Patent Family Size

Not all national markets are of equal size, and thus, not all patents offer the same potential economic payoff. For example, a U.S. patent may be viewed as potentially more valuable than a Swiss patent in that a U.S. patent gives its owner a monopoly right to sell and practice an invention in a much bigger market than a Swiss patent does. To correct for these differences, we calculated a weighted family size, using 1988 gross domestic product (GDP) data in current U.S. dollars at market exchange rates (MER) taken from the **1992 Statistical Yearbook of the United Nations**. Each country was weighted on a scale from 1 to 0 by dividing its GDP by the GDP of the largest economy (the U.S.).

Patent Citations

Not all patents are of equal value. Common wisdom has it that the distribution of patent values tends to be heavily skewed toward patents of relatively little importance. In order to correct for differences in the value of patents, researchers have counted the number of times a patent is cited by later patents. Studies have shown that the distribution of citations to patents is also heavily skewed so that a small number of patents are very highly cited, while many patents receive few or no citations.[10]

The front page of a patent document contains references to earlier patents and other technical or scientific publications. These references are the result of patent examiner searches of the "prior art," which are required to establish the novelty of an invention claimed by a patent. The cited documents are judged by the examiner to be relevant to the invention, but do not bar the patent from being granted.

Several studies have found that the number of times a patent is cited by subsequent patents correlates with various measures of importance or value.[11] These studies have

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[10] An early example of a study with this finding is M. Carpenter, F. Narin and P. Woolf, "Citation Rates to Technologically Important Patents," World Patent Information (1981) 160-163.

[11] M. Trajtenberg, "Patents, Citations, and Innovation: Tracing the Links," National Bureau of Economic Research, Working Paper 2457 (1987); Carpenter, Narin, and Woolf (1981) op.

defined importance variously as scientific or technological significance, and as economic value. Economists have made a further distinction--between "self" and "other" citations. Self citations are references made to a company's patents by its own later patents, while other citations are references made to a company's patents by later patents assigned to other companies. Self-citation is quite common and indicates that a firm is building on its previous inventions to pursue a line of research and development. Since large companies have more patents than small companies, it is likely that they tend to cite their earlier patents more than small companies. Removing the self-citations removes this possible source of bias. Therefore only other-citations were used in this analysis.

All of the small and large business patent numbers in our data set were searched through the U.S. References field in **U.S. PatentSearch** to calculate the number of times each patent had been cited by U.S. patent examiners on subsequent U.S. patents. The assignees on the citing patents were also identified so that distinctions could be made between "self" and "other" citations.

TECHNOLOGY CLASSIFICATION

It was desired to match small and large business patents by technology to account for possible differences in foreign patenting or citation patterns by technology. One study has shown, for example, that patents for gas lasers had more examiner references per patent than did patents for prostaglandins.[12] Similarly, technologies have been shown to differ in mean patent family size.[13]

The U.S. Patent Classification (USPC) is the primary technology classification applied to U.S. patents. It is an extremely detailed classification with about 400 main Classes and about 100,000 Subclasses. U.S. patent examiners place an Original Reference and Cross References on each patent. The Original Reference is the primary technology to which the claims of the patent pertain; the Cross References are secondary areas of technology to which the claims pertain. As mentioned earlier, the Original Reference USPC Class was used to match the small and large business pairs.

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cit.; F. Narin, M. Rosen, and D. Olivastro, "Patent Citation Analysis: New Validation Studies and Linkage Statistics," Handbook of Quantitative Studies of Science and Technology A.F.J. van Raan (ed.) (Elsevier Science Publishers: North-Holland 1988).

[12] M.P. Carpenter, M. Cooper, and F. Narin, "Linkage between Basic Research Literature and Patents," **Research Management**, v. 23 (March 1980): 30-35.

[13] M. Mogee and R.Kolar, "International Indicators of U.S. Position in Critical Technologies," report prepared for the Science and Engineering Indicators Unit, Division of Science Resources Studies, of the National Science Foundation, under contract #SRS-9223041 (December 21, 1993).

The 400 USPC Classes, however, were too numerous to be used to present the analysis results in a way that could be easily grasped. Therefore, they were aggregated into 13 broad technology areas:[14]

Bioengineering
Body Treatment, Care, Drugs
Electric Communications
Computers, Calculators, Data Processing, and Information Storage
Cutting, Comminution, and Machining
Heating & Cooling
Material, Article, & Fluid Handling & Storing
Measuring, Testing, Precision Instruments
Miscellaneous Chemical
Miscellaneous Electrical
Miscellaneous Mechanical
Traditional Manufacturing
Vehicles, Earth Working & Agricultural Machinery

Information on the make-up of the technology areas is provided in Appendix A.

ANALYSIS

The data were analyzed to address the research questions posed earlier in this report.

**1. Do patented inventions of small and large businesses differ in the extent to which foreign patent applications are filed for them?**

In considering whether small and large firms differ in foreign patenting patterns, the propensity to patent abroad must be distinguished from the number of countries in which applications are filed. Many companies may not file abroad at all. Thus, the first analysis addresses the propensity of small and large business patents in the sample to include foreign patent applications. This is measured by the proportion of their patent families that are international patent families. The analysis results are presented in Figure 1.

[14] This aggregation was based largely on the December 1994 edition of the USPTO's **Manual of Classification**, the section entitled "Classes within the U.S. Classification System: Arranged by Related Subjects."

Figure 1

| PERCENT OF FAMILIES THAT ARE INTERNATIONAL | | |
|---|---|---|
| FIRM SIZE | NUMBER | PERCENT |
| SMALL | 865 | 31.4 |
| LARGE | 1312 | 47.7 |

A larger proportion of large business families (47.7%) are international than small business families (31.4%). (This difference is statistically significant at the .001 level, using the Chi square test.) Conversely, about two-thirds of the small business patents in the sample are filed only in the U.S., as compared with about half of the large business patents.

To answer the question of whether small and large business patents differ in the average number of countries in which they are filed, the mean patent family size for small and large business patents is calculated. The mean patent family size is calculated both unweighted and weighted by an index based on its Gross Domestic Product (GDP). (See the discussion above in the "Variables" section.) We also calculate it for total families and for international families only (i.e., only those families with foreign patent applications).

Figure 2

| MEAN PATENT FAMILY SIZE | | | |
|---|---|---|---|
| | FIRM SIZE | TOTAL FAMILIES | INTERNATIONAL FAMILIES |
| UNWEIGHTED | SMALL | 3.17 | 7.90 |
| | LARGE | 4.35 | 8.02 |
| WEIGHTED | SMALL | 1.26 | 1.84 |
| | LARGE | 1.46 | 1.96 |

When total families are compared, large business patents have larger mean family sizes (4.35) than small business patents (3.17). (The difference is significant at the .001 level, using the Wilcoxon signed ranks test.)[15] This is consistent with the finding that more

[15] The Wilcoxon matched-pairs signed-ranks test is a nonparametric test for matched-pairs data. (Hubert M. Blalock, Jr., Social Statistics (2d ed.), New York: McGraw-Hill,

large firm patents are patented abroad. The difference in mean family size is smaller when the countries are weighted by GDP, but still statistically significant at the .001 level using the signed ranks test. This is probably due to the fact that the weights are fractions (with the U.S. GDP set as 1.0), as well as to the large weight given the U.S., which is in all patent families.

When only international families are compared, the difference in mean family size between small and large business patents is not statistically significant, using a 2-tailed t-test. Thus, conditional on filing abroad, small business and large business patent family sizes are the same. It seems that when a small business decides to file abroad, it tends to file in about as many countries as a large business would. When the patent countries are weighted, there is a small but statistically significant difference ($p < .001$ on a 2-tailed t-test); large business patents have a slightly bigger mean family size.

**2. Does the value of small business and large business patents, as measured by the number of citations, differ?**

To address the question of possible differences in the value of small business and large business patents, the number of other-citations each patent received from later patents is analyzed. Citations are analyzed in two ways. In the first method, we simply count the number of citations and calculate the mean number of other-citations per patent. Because it is known that the distribution of citations is highly skewed and therefore measures of central tendency may be misleading, we also count the number of patents that fall among the most highly cited patents in the combined sample. The latter is interpreted as measuring the proportion of patents that are extremely valuable.

Figure 3 presents the average number of other-citations per patent.

Figure 3

| MEAN NUMBER OF OTHER CITATIONS | |
|---|---|
| FIRM SIZE | OTHER-CITATIONS |
| SMALL | 3.39 |
| LARGE | 3.83 |

1972, pp. 265-269.)

Large business patents receive marginally more other-citations (3.83), on average, from later patents than do small business patents (3.39). This difference is statistically significant at the .0001 level, using the Wilcoxon signed ranks test. If the number of other-citations is a measure of the value of the patents, then large business patents are, on average, marginally more valuable than small business patents.

Figure 4 shows the representation of small and large business patents among the most highly cited patents in the combined sample of small and large business patents. Two threshold levels of citations are used: the top 1% of the most highly cited patents and the top 10%.

Figure 4

| PROPORTION OF MOST HIGHLY CITED PATENTS | | |
|---|---|---|
| FIRM SIZE | TOP 1% MOST CITED PATENTS | TOP 10% MOST CITED PATENTS |
| % SMALL | 47% | 47% |
| % LARGE | 53% | 53% |

The small differences between small firm patents and large firm patents at both levels of high-citation are not statistically significant at the .10 level, using the Chi square test. This indicates that small business patents and large business patents are about evenly represented among the most highly cited patents.

**3. When the field of technology is held constant, do differences in foreign patenting remain?**

This question is addressed in two ways. First, within each of the 13 technology areas, the proportion of small business patents and that of large business patents that have international families are compared. Second, the mean family sizes of small business and large business patents within the technology areas are compared. Figure 5 presents the percent of families that are international within each technology area.

Figure 5

| PERCENT OF FAMILIES THAT ARE INTERNATIONAL | | | |
|---|---|---|---|
| TECHNOLOGY AREA | SMALL BUSINESS | LARGE BUSINESS | P of Chi Square Test |
| BIOENGINEERING | 50.0% | 81.8% | .026 |
| BODY TREATMENT, CARE,DRUGS | 32.1 | 47.9 | .003 |
| COMMUNICATIONS, ELECTRIC | 32.6 | 51.1 | .001 |
| COMPUTERS, CALCULATORS, D.P., INFO. STORAGE | 35.0 | 62.0 | .001 |
| CUTTING, COMMINUTION, AND MACHINING | 25.4 | 48.5 | .001 |
| HEATING & COOLING | 31.0 | 51.2 | .008 |
| MATERIAL,ARTICLE, & FLUID HANDLING & STORING | 32.8 | 38.3 | .271 |
| MEASURING, TESTING, PRECISION INSTRUMS. | 31.8 | 42.9 | .045 |
| MISCELLANEOUS CHEMICAL | 40.9 | 53.7 | .001 |
| MISCELLANEOUS ELECTRICAL | 30.0 | 49.7 | .001 |
| MISCELLANEOUS MECHANICAL | 27.8 | 44.8 | .001 |
| TRADITIONAL MANUFACTURING | 27.5 | 43.2 | .001 |
| VEHICLES, EARTH WORKING & AGRIC. MACHINERY | 31.1 | 43.2 | .030 |

A statistically significant difference is found in each technology area but one ($p = .10$ or less, using a Chi square test). A smaller proportion of small business patent families is international in each technology area except Material, Article and Fluid Handling and Storing, in which a significant difference was not found.

Figure 6 presents the mean patent family sizes for small and large business patents by technology area. Data are presented for total families and international families only.

Figure 6

| MEAN PATENT FAMILY SIZE | | | | | | |
|---|---|---|---|---|---|---|
| TECHNOLOGY AREA | TOTAL FAMILIES | | | INTERNATIONAL FAMILIES | | |
| | SMALL BUSINESS | LARGE BUSINESS | P of Signed Ranks Test | SMALL BUSINESS | LARGE BUSINESS | P of 2-tailed t-Test |
| BIOENGINEERING | 8.14 | 11.45 | .0861 | 15.27 | 13.78 | >.20 |
| BODY TREATMENT, CARE,DRUGS | 3.99 | 5.80 | .0052 | 10.30 | 11.01 | >.20 |
| COMMUNICATIONS, ELECTRIC | 3.53 | 4.19 | .0843 | 8.76 | 7.24 | .10 |
| COMPUTERS, CALCULATORS, D.P., INFO. STORAGE | 4.17 | 5.35 | .0878 | 10.06 | 8.02 | .05 |
| CUTTING, COMMINUTION, AND MACHINING | 2.08 | 4.42 | .0001 | 5.27 | 8.06 | .01 |
| HEATING & COOLING | 2.95 | 4.24 | .0512 | 7.31 | 7.33 | >.20 |
| MATERIAL, ARTICLE, & FLUID HANDLING & STORING | 2.29 | 3.07 | .0278 | 4.93 | 6.41 | .05 |
| MEASURING, TESTING, PRECISION INSTRUMS. | 3.66 | 3.70 | .5966 | 9.35 | 7.30 | .05 |
| MISCELLANEOUS CHEMICAL | 4.59 | 5.98 | .0011 | 9.78 | 10.26 | >.20 |
| MISCELLANEOUS ELECTRICAL | 3.02 | 3.96 | .0004 | 7.72 | 6.95 | .20 |
| MISCELLANEOUS MECHANICAL | 2.57 | 3.87 | .0001 | 6.64 | 7.40 | .20 |
| TRADITIONAL MANUFACTURING | 2.59 | 3.75 | .0002 | 6.77 | 7.37 | >.20 |
| VEHICLES, EARTH WORKING & AGRIC. MACHINERY | 2.61 | 3.51 | .0534 | 6.20 | 6.80 | >.20 |

When total families are analyzed, statistically significant differences are found for all technology areas except Measuring, Testing, and Precision Instruments. In all other technology areas, large business patents have bigger patent families, on average, than small business patents.

When only international families are analyzed, statistically significant differences emerge in five technology areas (i.e., five technology areas showed probabilities of less than .10 on a 2-tailed t-test). In eight technology areas, no statistically significant difference is found. In the areas with significant differences, small business patents have bigger mean family sizes than large business patents in three of the five areas.

**4. When the field of technology is held constant, do differences in number of citations remain?**

It was found earlier (Figure 3) that when patents for all technologies are considered together, large business patents receive marginally more other-citations (3.83), on average, from later patents than do small business patents (3.39). In this analysis, citations are analyzed for small and large business patents in each technology area. First, the mean number of other-citations per patent is calculated. Figure 7 presents mean number of other-citations per patent by technology area. Statistically significant differences are found in six technology areas. In all six of these areas large business patents receive on average more other-citations than do small business patents.

Figure 7

| MEAN NUMBER OF OTHER-CITATIONS PER PATENT | | | |
|---|---|---|---|
| TECHNOLOGY AREA | SMALL BUSINESS | LARGE BUSINESS | P of Signed Ranks Test |
| BIOENGINEERING | 3.05 | 4.91 | .1619 |
| BODY TREATMENT, CARE,DRUGS | 6.71 | 6.91 | .8335 |
| COMMUNICATIONS, ELECTRIC | 5.39 | 5.83 | .0608 |
| COMPUTERS, CALCULATORS, D.P., INFO. STORAGE | 6.03 | 7.14 | .0767 |
| CUTTING, COMMINUTION, AND MACHINING | 1.68 | 3.13 | .0001 |
| HEATING & COOLING | 1.73 | 3.38 | .0038 |
| MATERIAL,ARTICLE, & FLUID HANDLING & STORING | 2.79 | 2.79 | .4004 |
| MEASURING, TESTING, PRECISION INSTRUMS. | 2.79 | 2.94 | .7685 |
| MISCELLANEOUS CHEMICAL | 3.27 | 3.29 | .5609 |
| MISCELLANEOUS ELECTRICAL | 3.35 | 3.78 | .0510 |
| MISCELLANEOUS MECHANICAL | 2.93 | 3.54 | .0046 |
| TRADITIONAL MANUFACTURING | 2.74 | 2.87 | .5996 |
| VEHICLES, EARTH WORKING & AGRIC. MACHINERY | 2.71 | 2.95 | .3177 |

Thus, when individual technology areas are examined, small business patents receive about the same average number of other-citations per patent as large business patents in about half the technology areas, and they receive fewer other-citations per patent in the remaining technology areas. In none of the technology areas do small business patents receive more other-citations per patent, on average, than do large business patents. (In interpreting this

finding, it should be kept in mind that both domestic-only and international families are included in this analysis.)

It was found earlier (Figure 4) that small firm patents are represented at the same level among the top 1% and top 10% of most highly cited patents as are large firm patents. In this analysis, the proportion of patents falling in the most highly cited patents is calculated within each technology area. Figure 8 presents the proportion of patents among the 10% most highly patents in the different technology areas for small and large business patents. (The cell sizes for the top 1% are too small to analyze.)

Figure 8

| PROPORTION OF PATENTS AMONG TOP 10% MOST HIGHLY CITED PATENTS | | | |
|---|---|---|---|
| TECHNOLOGY AREA | SMALL BUSINESS | LARGE BUSINESS | P of Chi Square Test |
| BIOENGINEERING | 57 | 43 | .680* |
| BODY TREATMENT, CARE, DRUGS | 49 | 51 | .873 |
| COMMUNICATIONS, ELECTRIC | 52 | 48 | .733 |
| COMPUTERS, CALCULATORS, D.P., INFO. STORAGE | 35 | 55 | .157 |
| CUTTING, COMMINUTION, & MACHINING | 36 | 82 | .094 |
| HEATING & COOLING | 35 | 78 | .201 |
| MATERIAL, ARTICLE & FLUID HANDLING & STORING | 54 | 46 | .603 |
| MEASURING, TESTING, PRECISION INSTRUMS. | 50 | 50 | 1.000 |
| MISCELLANEOUS CHEMICAL | 59 | 41 | .083 |
| MISCELLANEOUS ELECTRICAL | 47 | 53 | .528 |
| MISCELLANEOUS MECHANICAL | 42 | 58 | .040 |
| TRADITIONAL MANUFACTURING | 48 | 52 | .842 |
| VEHICLES, EARTH WORKING & AGRIC. MACHINERY | 58 | 42 | .356 |

* Confirmed by Fisher's Exact Test

Statistically significant differences are found for three technology areas. Thus, in most technology areas, no statistically significant differences could be found. In those areas with differences, large business patents form a greater proportion of highly cited patents in two technology areas, and small business patents form a greater proportion of highly cited patents in one technology (Miscellaneous Chemical).

**5. When both field of technology and level of citations are held constant, do small and large business patents differ with respect to foreign patenting?**

Earlier (Figure 5) it was found that a smaller proportion of small business patents are international in all technology areas but one. In this analysis, we attempt to hold both technology area and level of citations constant. To hold technology constant, we compare small and large business patents within each technology area. To hold the level of citations constant, we look at the top 25% most highly other-cited patents (i.e., patents with high levels of citations) within each technology area.

Figure 9 presents the proportion of families that are international for small and large business patents that are among the top 25% most highly other-cited patents in each technology area. Differences are statistically significant at $p = .10$ or less, using a Chi square test, for 8 of the 13 technology areas. In each of these eight areas, a smaller proportion of small business patent families are international than are large business patent families. In five technology areas there is no statistically significant difference in the proportion of small and large business patents that are international.

Thus, when only highly cited patents are considered, small business patents are less likely to be filed abroad than large business patents in some technology areas and no difference can be found in other technology areas.

Figure 9

| PROPORTION OF FAMILIES THAT ARE INTERNATIONAL: TOP 25% MOST HIGHLY CITED PATENTS WITHIN EACH TECHNOLOGY | | | |
|---|---|---|---|
| TECHNOLOGY AREA | SMALL BUSINESS | LARGE BUSINESS | P of Chi Square Test |
| BIOENGINEERING | 75.00 | 85.71 | .658* |
| BODY TREATMENT, CARE, DRUGS | 43.75 | 47.50 | .725 |
| COMMUNICATIONS, ELECTRIC | 48.84 | 58.33 | .364 |
| COMPUTERS, CALCULATORS, D.P., INFO. STORAGE | 34.78 | 82.76 | .001 |
| CUTTING, COMMINUTION, & MACHINING | 24.24 | 49.15 | .019 |
| HEATING & COOLING | 35.71 | 62.07 | .104 |
| MATERIAL, ARTICLE & FLUID HANDLING & STORING | 34.04 | 31.25 | .772 |
| MEASURING, TESTING, PRECISION INSTRUMS. | 33.93 | 53.33 | .050 |
| MISCELLANEOUS CHEMICAL | 45.16 | 64.29 | .011 |
| MISCELLANEOUS ELECTRICAL | 39.51 | 56.73 | .020 |
| MISCELLANEOUS MECHANICAL | 34.09 | 47.64 | .007 |
| TRADITIONAL MANUFACTURING | 18.92 | 42.31 | .002 |
| VEHICLES, EARTH WORKING & AGRIC. MACHINERY | 26.67 | 51.11 | .017 |

* Confirmed by Fisher's Exact Test

Earlier (Figure 6) it was learned that when total families are analyzed, large business patents have bigger patent families, on average, than small business patents in every technology area but one. When only international families are analyzed, however, differences are found in only 5 of 13 technology areas, and in 3 of those 5 areas, small business patents have larger patent families than do large business patents. In the following analysis, we again look at mean patent family size within technology areas, but we limit the patents to the most highly cited 25% to see whether the level of citations has an effect on this relationship. Figure 10 shows the mean patent family size for the most highly cited 25% of patents in each technology area.

Figure 10

| MEAN FAMILY SIZE: TOP 25% MOST HIGHLY OTHER-CITED PATENTS | | | | | | |
|---|---|---|---|---|---|---|
| | TOTAL FAMILIES | | | INTERNATIONAL FAMILIES | | |
| TECHNOLOGY AREA | SMALL BUSINESS | LARGE BUSINESS | P of 2-tailed t-test | SMALL BUSINESS | LARGE BUSINESS | P of 2-tailed t-test |
| BIOENGINEERING | 16.25 | 11.25 | >.20 | 21.33 | 13.67 | .10 |
| BODY TREATMENT, CARE, DRUGS | 4.60 | 5.05 | >.20 | 9.24 | 9.53 | >.20 |
| COMMUNICATIONS, ELECTRIC | 5.16 | 4.52 | >.20 | 9.52 | 7.04 | .10 |
| COMPUTERS, CALCULATORS, D.P., INFO. STORAGE | 4.52 | 8.34 | .02 | 11.13 | 9.88 | >.20 |
| CUTTING, COMMINUTION, & MACHINING | 1.94 | 4.47 | .01 | 4.88 | 8.07 | .20 |
| HEATING & COOLING | 4.79 | 6.03 | >.20 | 11.60 | 9.11 | >.20 |
| MATERIAL, ARTICLE & FLUID HANDLING & STORING | 3.00 | 2.81 | >.20 | 6.88 | 6.80 | >.20 |
| MEASURING, TESTING, PRECISION INSTRUMS. | 4.57 | 3.53 | >.20 | 11.53 | 5.75 | <.001 |
| MISCELLANEOUS CHEMICAL | 5.14 | 7.85 | .01 | 10.17 | 11.65 | >.20 |
| MISCELLANEOUS ELECTRICAL | 4.31 | 4.78 | >.20 | 9.38 | 7.66 | .10 |
| MISCELLANEOUS MECHANICAL | 2.89 | 4.15 | .01 | 6.53 | 7.60 | >.20 |
| TRADITIONAL MANUFACTURING | 2.03 | 3.88 | .01 | 6.43 | 7.82 | >.20 |
| VEHICLES, EARTH WORKING & AGRIC. MACHINERY | 2.29 | 4.73 | .01 | 5.83 | 8.30 | .20 |

When the top 25% most highly other-cited patents are considered for domestic-only and international families together, statistically significant differences are found for six technology areas (p=.10 or less using a 2-tailed t-test). In all of these six technology areas, large business patents have larger mean family sizes than small business patents.

When the top 25% most highly other-cited patents are considered for international families only, statistically significant differences are found for four technology areas (p=.10

or less using a 2-tailed t-test). In all of these four technology areas, small business patents have larger mean family sizes than large business patents.

Summary of Findings

A smaller proportion of small business families (31.4%) were international than large business families (47.7%). When total families were compared, large business patents had larger mean family sizes (4.35) than small business patents (3.17). The difference in mean family size was somewhat smaller when the countries were weighted by GDP. When only international families were compared, the difference in mean family size between small and large business patents was not statistically significant. This means that, conditional on filing abroad, small business and large business patent family sizes were not different. When the patent countries were weighted, large business international patents had a slightly larger mean family size (1.96) than small business international patents (1.84).

Large business patents received marginally more other-citations (3.83), on average, from later patents than did small business patents (3.39). There was no difference, however, between small and large firm patents in terms of representation among the most highly cited patents.

A smaller proportion of small business patent families was international in each technology area but one. When total families were analyzed, large business patents had bigger patent families, on average, than small business patents, in every technology area but one, where no difference in mean patent family size was found. When only international families were analyzed, no differences were found in eight technology areas, small business patents had bigger mean family sizes in three technology areas, and large business patents had bigger mean family sizes in two technology areas.

When individual technology areas were examined, small business patents received about the same average number of other-citations per patent as large business patents in about half the technology areas and fewer other-citations per patent in the remaining technology areas. In none of the technology areas did small business patents receive more other-citations per patent, on average, than did large business patents.

In most technology areas (10 out of 13), no difference was found in the proportion of small and large business patents among the top 10% most highly cited patents. In the three technology areas with differences, large business patents formed a greater proportion of highly cited patents than did small business patents in two areas and small business patents formed a greater proportion of highly cited patents than did large business patents in one area.

When the top 25% most highly cited patents in each technology area were considered, a smaller proportion of small business patents were international than were large business

patents in eight technology areas. In five technology areas, no difference between small and large firm patents was found.

When the top 25% most highly cited patents were considered for total families, no difference in mean family sizes between small and large business patents could be found in about half the technology areas (7 of 13). For all the technology areas with differences, large business patents had larger mean family sizes than small business patents. When the top 25% most highly cited patents were considered for international families only, no difference in mean family sizes could be found in 9 of 13 technology areas. For all the technology areas with differences, small business patents had larger mean family sizes than large business patents.

INTERVIEWS

Purpose

The purpose of the interviews was to conduct some exploratory "real world" testing of the findings from the quantitative analysis. As originally planned, a small number (eight) of interviews would be conducted to explore reasons for observed differences in foreign patenting behavior of small and large U.S. companies. The finding that when small business patents are filed abroad they are filed in as many countries as large business patents, however, suggested that a more effective strategy for the eight interviews would be to explore differences between small firms that patent abroad and those that do not.

Different kinds of small businesses may be involved in these behaviors. It is possible that small businesses that patented in foreign countries are larger, more advanced technology-oriented, or more oriented toward foreign markets. They may be seeking markets that are growing faster. They may be in businesses where it is necessary to have foreign patent protection in order to survive. Because of the businesses they are in, they may be forced to behave like larger firms. They may be younger firms that are on a "career path" that may lead to becoming large businesses.

In contrast, small businesses that patent in the U.S. but not in foreign countries may be smaller, based on more traditional technologies or less technology-oriented, less oriented toward foreign markets, and growing more slowly.

Interviewed companies were selected from the small businesses with patents in our sample, that is, based on their U.S. patents issued in 1988. Four companies with no foreign patents in our set of 1988 patents (i.e., low-involvement companies) and four of the companies with the highest mean patent family sizes in our 1988 sample (i.e., high-involvement companies) were selected to maximize the expected differences among the companies. An effort was also made to represent companies patenting in different technology areas.

The interviews were conducted by telephone. The respondent was typically an official in the firm's patent office or a company official responsible for overseeing the company's patenting.

It was recognized that changes may have occurred in these firms since 1988; therefore, some questions were designed to check what changes had occurred. Questions were asked to: (1) confirm the classification of the company with respect to size, nationality, and level of involvement with foreign patenting, (2) find out what kind of company it was and what business it was in, (3) find out size and nature of ownership, (4) find out how important foreign patenting was to it, and (5) find out what barriers, if any, it perceived to foreign patenting and their severity.

Appendix B contains the Interview Schedule that was used to guide the telephone interviews. Some questions were intended to elicit scalable responses; others probed for qualitative, descriptive responses. Appendix C contains tallied responses to the interview. Responses were classified as coming from low foreign patenting companies (Low) and high foreign patenting companies (High).

Results

Characteristics of the Sample Firms. All of the firms except one continue to be small firms, based on number of employees. Firms with low involvement in foreign patenting (Low firms) may be somewhat smaller than firms with high involvement in foreign patenting (High firms). At least three-quarters of Low firms had 250 or fewer employees, with one having fewer than 100. All High firms had at least 100 employees with one-half having more than 250. Three-quarters of both Low firms and High firms were growing companies. One Low company was shrinking; one High company was stable.

All firms were based in the U.S. and had no manufacturing units in other countries. One company, however, was more than half-owned by a foreign company, a development that occurred after 1988. The Low companies were all privately or family owned. One-half the High companies were publicly owned.

All eight firms were founded by technological entrepreneurs. The founding entrepreneur still runs one-half of the Low firms, but only one of the High firms. In several cases, the founding entrepreneur had died.

All eight firms reported having a formal R&D program. Data on the size of the R&D program were not collected directly, but in some cases it appeared that the R&D program consisted of one or two engineers working on new product developments, sometimes in addition to other responsibilities. In other cases, the firm clearly had a large R&D program.

The High companies had significantly more U.S. patents than did the Low companies. Three High firms had over 100 U.S. patents and one, the company that was no longer small, had about 1000. Three of four Low companies had fewer than 25 US patents. This probably means that the Low firms had smaller R&D programs than the High firms.

None of the Low firms had received federal government funding for R&D or procurement. One-half of the High firms had received federal government funds, and one other High firm had used federal funding for clinical studies. None of the companies that received federal funding considered it an important part of their business. Federal agencies and programs mentioned included the Department of Defense, the Environmental Protection Agency, the National Institutes of Health, the Department of Energy, and the Small Business Innovation Research Program.

The median age of the firms was 25 years; the oldest was 40 years old and the youngest was 14 years old. The High firms were somewhat older than the Low firms, but the difference is probably not statistically significant.

The four Low companies patented in the technology areas of electronics, electrical switches, food packaging machinery, and carbon dioxide lasers. The four High companies patented in the technology areas of pollution control equipment, fluid mechanics measuring instruments, glass tempering and bending machinery, and biotechnology-based drugs.

All eight firms viewed patented inventions, in general, as moderately to extremely important to their businesses. Three-quarters of the Low companies viewed their patented inventions as extremely important to their business, compared to one-half of the High companies. Typical comments from firms that rated patented inventions as very or extremely important to their business were that theirs were proprietary, or unique, products; one firm pointed out that they "pushed the envelope" in their technology. One firm that rated the importance of patented inventions as moderate noted that "patented inventions were important to the business, but not key; some of the most successful inventions were not patented."

Foreign sales were more important to the High companies than to the Low companies. Three Low firms had 25% or less foreign sales. Three-quarters of the High firms had over 25% foreign sales with one having over 50%. One High firm and one Low firm did not report percent of sales that were foreign.

All the High companies competed against both big and small firms. One Low company competed mostly against big firms, one mostly against other small firms, and the other two competed against a mix of companies.

Foreign Patenting. Three-fourths of the Low firms had few or no foreign patents, while all the High firms sought protection abroad for some or most of their inventions. This data confirmed that the sampling frame was accurate, i.e., the Low companies were low in terms of foreign patenting and the High companies were high. Correspondingly, all Low

companies said that foreign patenting was less than moderately important to the company, while all the High companies said foreign patenting was at least moderately important to the company, and one-half of them said it was extremely important.

The primary reason given by Low companies for the unimportance of foreign patenting was the lack of foreign sales or competitors. One company that has never patented abroad said "there is no foreign business to protect." Another company that did not patent abroad very much said, "When we patent abroad, it is to obtain protection in a country where we are selling our machine. It is important then." Reasons given by High companies for the importance of foreign patenting tied it to foreign sales. All four High companies said they sought protection in countries that were important markets for their products or major competitors. One High company said that the majority of its business was overseas, and so it used patents to keep potential competitors or customers from infringing upon their intellectual property rights in foreign countries. Another High company said it sold in large industrialized countries, and therefore, it sought protection there. Two of the High companies mentioned the importance of foreign patents in licensing to companies overseas.

One-half the Low companies have encountered problems in foreign patenting, one reported no problems, and one has never tried to patent abroad. The Low companies that encountered problems in foreign patenting regarded them as serious obstacles. Three of the High companies had encountered problems in foreign patenting, and one reported no problems. Two of the three High firms that reported encountering problems, however, expressed the view that these problems were normal or to be expected in the course of doing business and did not constitute a real hindrance to them, commenting that the problems were "nothing unusual" or "nothing in particular." One High firm that reported no problems noted that "in one case the Japanese Patent Office turned us down a couple of times, but we hired an attorney with more Japanese experience" and successfully prosecuted the patent.

The cost of foreign protection and inadequate foreign patent protection were the primary problems encountered in foreign patenting. Cost was the single most commonly mentioned problem (two Low firms and two High firms). Specific cost factors were filing and maintenance fees and the need to retain foreign counsel or patent agents. A number of problems were mentioned that fall under the category of inadequate foreign patent protection (two Low firms and one High firm). Specifically mentioned were "shaky protection in some countries," "lack of protection in foreign courts," "difficulty of litigation," and "narrow coverage" in some countries. One company simply referred to "different laws." Another referred to opposition procedures that exist in some countries. Another problem mentioned was that of an "uneven playing field" (one Low firm and one High firm). For example, one company noted that Pacific Rim countries favor their industry over U.S. companies and thus, do not weigh evidence of infringement of patents of U.S. companies very heavily.

Companies that mentioned specific problems tended to view them as moderately to extremely serious. They also tended to distinguish the severity of different problems. For example, one Low company noted that the patenting problems they had encountered in

Europe were not very serious, but in the Far East they were extremely serious. Another company felt that opposition procedures were not a serious problem, but that cost was a moderately serious problem. A third company felt that cost of foreign patenting was an extremely serious problem.

Summary of Findings from Interviews. No hard and fast conclusions can be drawn from such a small number of interviews, but it is possible to discern some patterns that are suggestive. Three factors seem to distinguish between small companies that do little foreign patenting and those that are heavily involved in foreign patenting: focus on foreign markets, size of R&D program, and federal funding for R&D or procurement.

The most important of these factors is focus on foreign markets. As noted, the High companies generally had a larger proportion of sales in foreign countries. Moreover, the companies specifically related their level of foreign patenting and the importance of foreign patenting to the level and distribution of their foreign sales. That is, if a large proportion of a company's sales are in foreign countries, then foreign patenting to protect those sales is more important to the company. Generally, patents are sought in countries that are major markets or where major competitors are located.

Small companies with high levels of foreign patenting seem to have relatively large R&D programs compared to small companies that do not patent abroad. The evidence for this is indirect; the number of U.S. patents, which may be viewed as an indicator of the size of R&D program, is higher for small companies involved in foreign patenting. This finding is consistent with other research that has found R&D-intensive industries to be responsible for more exports.[16] The relationship may be that large R&D programs are capable of producing products that can compete in international markets and that large international markets are, in turn, necessary for a company to continue to support a large R&D program.

The third distinguishing characteristic seems to be receipt of federal government funding for R&D or procurement. The small companies with high foreign patenting in our sample more often received federal funding for R&D, clinical studies, or procurement than did small companies with low foreign patenting. Three of four High firms had received federal funding, while none of the Low firms had. None of the companies, however, considered federal funding to be important to their business. For this reason, one cannot conclude that federal R&D funding or procurement has a direct or important effect on foreign patenting of small firms.

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[16]U.S. National Science Board, Science & Engineering Indicators--1993 (Washington,D.C.: U.S. Government Printing Office, 1993), p. 164.

CONCLUSIONS

Patented inventions of small and large U.S. firms in the sample differ in the proportion that are filed outside the United States. About one-third of the small business patents are filed abroad, compared to about one-half of the large business patents. When all patents (i.e., both international and U.S.-only) are considered, large business patents are filed on average in more countries. When just international families are considered, however, the difference in the number of countries in which applications are filed is very small.

This suggests a sort of step function or sample bifurcation. That is, more small businesses with R&D capabilities patent only in the U.S. than do large businesses with R&D capabilities. Large or small companies that patent abroad, however, tend to behave in basically similar ways. Hence, the relevant difference may not be so much between small and large businesses, as it is between companies that engage in international business and those that do not.

The value of patents, as measured by the number of other-citations, of small and large U.S. firms is comparable. Large business patents receive somewhat larger numbers of citations, on average, but small business patents are represented equally among the most highly cited patents.

When individual technology areas are examined, significant differences remain between small and large business patents in the proportion of patents that are filed abroad; a bigger proportion of large business patents is filed abroad in all technologies. Considering international patent families within individual technology areas, significant differences remain in the number of countries in which applications have been filed for only 5 of 13 areas; small business patents have been filed in more countries, on average, in some technologies and large business patents in others.

Some differences persist in the extent of foreign patenting between small business patents and large business patents even when only the highest-value patents within a given technology area are considered. Again, differences are greater with respect to tendency to patent overseas than for the number of countries in which applications are filed. In looking at the proportion of total patents filed abroad, differences exist in eight technology areas and in each of these high-value small business patents are less likely to be filed abroad than high-value large company patents. In looking at mean family size of international families, however, differences exist in only four areas, and in each of these areas high-value small business patents have a larger mean family size.

The results seem to suggest that differences in the number of countries in which patent applications are filed by small and large U.S. firms are due largely to differences in the technology areas in which small and large firms patent and to differences in the value of their patents. The observation that in some technology areas small businesses patent in more countries than do large businesses may indicate that foreign patent protection is strategically

more important to small businesses than to large businesses and outweighs the small business's resource disadvantage.

The factors of technology area and value seem to account less well for the difference in the proportion of small and large business patents that are filed abroad. The persistence of a tendency by small companies not to patent inventions abroad, even when they are of very high value, suggests that value of the invention does not explain why they are not patenting abroad and raises questions about what other reasons may be. Its persistence across a majority of the technology areas suggests that this effect is strong and arises from factors associated with the small size of the firm, such as cost and related factors, such as access to information and specialized expertise.

Based on our interviews, the main reason small businesses do not patent abroad is that they do not have foreign sales or major foreign competitors. Thus, lack of foreign patenting by small companies is not necessarily a problem, from the perspective of society. If a company has no foreign sales or competitors, it does not need to protect its inventions in foreign countries. However, the reason for no foreign sales is not known from these interviews. Several different reasons can be suggested: (1) the small company is producing a product for which foreign markets do not exist; (2) the small company may have foreign marketing opportunities but be unaware of them or not be pursuing them; (3) the small company may not be capable of competing in foreign markets because of research, production, distribution, or technological limitations. Depending on the reason, there may be cause for concern that small businesses are not participating in international markets to the optimal extent.

Small companies that file foreign patent applications often encounter problems, mainly cost and difficulties in getting adequate protection, ranging from narrow patent laws in some countries to difficulties in getting fair infringement judgements in others. These complaints are similar to those made by representatives of large companies in other contexts[17], and they are recognized by at least some small companies as a necessary evil of doing international business. Nonetheless, high cost obviously affects the ability of small companies to obtain and maintain foreign patents more than it does large companies. Moreover, although differing national patent laws and practices do not overtly discriminate against small businesses, large companies clearly have more resources to navigate and manipulate foreign patent systems to their advantage. This suggests that small businesses with valuable inventions face special barriers in obtaining foreign patent protection because of their limited resources. The difficulty in obtaining economic benefit from their inventions in foreign countries not only reduces the income of small businesses but also that of the broader U.S. economy, of which small businesses are an important part.

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[17] M. Wallerstein, M. Mogee, and R. Schoen (eds.), Global Dimensions of Intellectual Property Rights in Science and Technology, Washington, D.C.: National Academy Press, 1993.

## APPENDIX A
## TECHNOLOGY AREAS BASED ON U.S. PATENT CLASSES

| TECHNOLOGY AREA | U.S. PATENT CLASS NUMBER | U.S. PATENT CLASS TITLE |
|---|---|---|
| BIOENGINEERING | 435 | CHEMISTRY: MOLECULAR BIOLOGY AND MICROBIOLOGY |
| | 800 | MULTICELLULAR LIVING ORGANISMS AND UNMODIFIED PARTS THEREOF |
| | 930 | PEPTIDE OR PROTEIN SEQUENCE |
| | 935 | GENETIC ENGINEERING: RECOMBINANT DNA TECHNOLOGY, HYBRID OR FUSED CELL TECHNOLOGY, AND RELATED MANIPULATIONS OF NUCLEIC ACIDS |
| BODY TREATMENT, CARE, DRUGS | 27 | UNDERTAKING |
| | 128 | SURGERY |
| | 433 | DENTISTRY |
| | 600 | SURGERY |
| | 601 | SURGERY: KINESITHERAPY |
| | 602 | SURGERY: SPLINT, BRACE, OR BANDAGE |
| | 604 | SURGERY |
| | 606 | SURGERY |
| | 607 | SURGERY: LIGHT, THERMAL, AND ELECTRICAL APPLICATION |
| | 623 | PROSTHESIS (I.E., ARTIFICIAL BODY MEMBERS), PARTS THEREOF, OR AIDS AND ACCESSORIES THEREOR |
| | 424 | DRUG, BIO-AFFECTING AND BODY TREATING COMPOSITIONS |
| | 514 | DRUG, BIO-AFFECTING AND BODY TREATING COMPOSITIONS |
| COMMUNICATIONS, ELECTRIC | 116 | SIGNALS AND INDICATORS |
| | 178 | TELEGRAPHY |
| | 329 | DEMODULATORS |
| | 332 | MODULATORS |
| | 334 | TUNERS |
| | 340 | COMMUNICATIONS: ELECTRICAL |
| | 341 | CODED DATA GENERATION OR CONVERSION |
| | 342 | COMMUNICATIONS: DIRECTIVE RADIO WAVE SYSTEMS AND DEVICES (E.G., RADAR, RADIO NAVIGATION) |
| | 343 | COMMUNICATIONS: RADIO WAVE ANTENNAS |
| | 345 | SELECTIVE VISUAL DISPLAY SYSTEMS |
| | 348 | TELEVISION |
| | 358 | FACSIMILE OR TELEVISION RECORDING |
| | 367 | COMMUNICATIONS, ELECTRICAL: ACOUSTIC WAVE SYSTEMS AND DEVICES |
| | 370 | MULTIPLEX COMMUNICATIONS |
| | 375 | PULSE OR DIGITAL COMMUNICATIONS |
| | 379 | TELEPHONIC COMMUNICATIONS |
| | 380 | CRYPTOGRAPHY |

APPENDIX A (CONT.)
TECHNOLOGY AREAS BASED ON U.S. PATENT CLASSES

| TECHNOLOGY AREA | U.S. PATENT CLASS NUMBER | U.S. PATENT CLASS TITLE |
|---|---|---|
| COMMUNICATIONS, ELECTRIC (CONT.) | 381 | ELECTRICAL AUDIO SIGNAL PROCESSING SYSTEMS AND DEVICES |
| | 382 | IMAGE ANALYSIS |
| | 455 | TELECOMMUNICATIONS |
| COMPUTERS, CALCULATORS, DATA PROCESSING & INFORMATION STORAGE | 235 | REGISTERS |
| | 346 | RECORDERS |
| | 347 | INCREMENTAL PRINTING OF SYMBOLIC INFORMATION |
| | 360 | DYNAMIC MAGNETIC INFORMATION STORAGE OR RETRIEVAL |
| | 364 | ELECTRICAL COMPUTERS AND DATA PROCESSING SYSTEMS |
| | 365 | STATIC INFORMATION STORAGE AND RETRIEVAL |
| | 369 | DYNAMIC INFORMATION STORAGE OR RETRIEVAL |
| | 371 | ERROR DETECTION/CORRECTION AND FAULT DETECTION/RECOVERY |
| | 377 | ELECTRICAL PULSE COUNTERS, PULSE DIVIDERS, OR SHIFT REGISTERS: CIRCUITS AND SYSTEMS |
| | 395 | INFORMATION PROCESSING SYSTEM ORGANIZATION |
| | 902 | ELECTRONIC FUNDS TRANSFER |
| CUTTING, COMMINUTING & MACHINING | 30 | CUTLERY |
| | 51 | ABRASIVE TOOL MAKING PROCESS, MATERIAL, OR COMPOSITION |
| | 72 | METAL DEFORMING |
| | 82 | TURNING |
| | 83 | CUTTING |
| | 100 | PRESSES |
| | 125 | STONE WORKING |
| | 140 | WIREWORKING |
| | 142 | WOOD TURNING |
| | 144 | WOODWORKING |
| | 225 | SEVERING BY TEARING OR BREAKING |
| | 228 | METAL FUSION BONDING |
| | 234 | SELECTIVE CUTTING (E.G., PUNCHING) |
| | 241 | SOLID MATERIAL COMMINUTION OR DISINTEGRATION |
| | 249 | STATIC MOLDS |
| | 407 | CUTTERS, FOR SHAPING |
| | 408 | CUTTING BY USE OF ROTATING AXIALLY MOVING TOOL |
| | 409 | GEAR CUTTING, MILLING, OR PLANING |
| | 413 | SHEET METAL CONTAINER MAKING |
| | 425 | PLASTIC ARTICLE OR EARTHENWARE SHAPING OR TREATING: APPARATUS |
| | 451 | ABRADING |

APPENDIX A (CONT.)
TECHNOLOGY AREAS BASED ON U.S. PATENT CLASSES

| TECHNOLOGY AREA | U.S. PATENT CLASS NUMBER | U.S. PATENT CLASS TITLE |
|---|---|---|
| CUTTING, COMMINUTING & MACHINING (CONT.) | 460 | CROP THRESHING OR SEPARATING |
| | 470 | THREADED, HEADED FASTENER, OR WASHER MAKING: PROCESS AND APPARATUS |
| | 483 | TOOL CHANGING |
| HEATING & COOLING | 62 | REFRIGERATION |
| | 110 | FURNACES |
| | 122 | LIQUID HEATERS AND VAPORIZERS |
| | 126 | STOVES AND FURNACES |
| | 165 | HEAT EXCHANGE |
| | 236 | AUTOMATIC TEMPERATURE AND HUMIDITY REGULATION |
| | 237 | HEATING SYSTEMS |
| | 431 | COMBUSTION |
| | 432 | HEATING |
| MATERIAL & ARTICLE HANDLING, FLUID HANDLING, HANDLING & STORING SHEETS, ETC. | 4 | BATHS, CLOSETS, SINKS, AND SPITTOONS |
| | 137 | FLUID HANDLING |
| | 138 | PIPES AND TUBULAR CONDUITS |
| | 251 | VALVES AND VALVE ACTUATION |
| | 454 | VENTILATION |
| | 226 | ADVANCING MATERIAL OF INDETERMINATE LENGTH |
| | 242 | WINDING, TENSIONING, OR GUIDING |
| | 271 | SHEET FEEDING OR DELIVERING |
| | 402 | BINDER DEVICE RELEASABLY ENGAGING APERTURE OR NOTCH OF SHEET |
| | 492 | ROLL OR ROLLER |
| | 186 | MERCHANDISING |
| | 187 | ELEVATOR, INDUSTRIAL LIFT TRUCK, OR STATIONARY LIFT FOR VEHICLE |
| | 193 | CONVEYORS, CHUTES, SKIDS, GUIDES, AND WAYS |
| | 198 | CONVEYORS: POWER-DRIVEN |
| | 212 | TRAVERSING HOISTS |
| | 224 | PACKAGE AND ARTICLE CARRIERS |
| | 258 | RAILWAY MAIL DELIVERY |
| | 294 | HANDLING: HAND AND HOIST-LINE IMPLEMENTS |
| | 406 | CONVEYORS: FLUID CURRENT |
| | 414 | MATERIAL OR ARTICLE HANDLING |
| | 901 | ROBOTS |
| MEASURING, TESTING, PRECISION INSTRUMENTS | 33 | GEOMETRICAL INSTRUMENTS |
| | 73 | MEASURING AND TESTING |
| | 177 | WEIGHING SCALES |

APPENDIX A (CONT.)
TECHNOLOGY AREAS BASED ON U.S. PATENT CLASSES

| TECHNOLOGY AREA | U.S. PATENT CLASS NUMBER | U.S. PATENT CLASS TITLE |
|---|---|---|
| MEASURING, TESTING, PRECISION INSTRUMENTS (CONT.) | 324 | ELECTRICITY: MEASURING AND TESTING |
| | 333 | WAVE TRANSMISSION LINES AND NETWORKS |
| | 356 | OPTICS: MEASURING AND TESTING |
| | 368 | HOROLOGY: TIME MEASURING SYSTEMS OR DEVICES |
| | 374 | THERMAL MEASURING AND TESTING |
| | 968 | HOROLOGY |
| MISCELLANEOUS CHEMICAL | 71 | CHEMISTRY: FERTILIZERS |
| | 504 | PLANT PROTECTING AND REGULATING COMPOSITIONS |
| | 106 | COMPOSITIONS: COATING OR PLASTIC |
| | 252 | COMPOSITIONS |
| | 501 | COMPOSITIONS: CERAMIC |
| | 512 | PERFUME COMPOSITIONS |
| | 8 | BLEACHING AND DYEING; FLUID TREATMENT AND CHEMICAL MODIFICATION OF TEXTILES AND FIBERS |
| | 23 | CHEMISTRY: PHYSICAL PROCESSES |
| | 117 | SINGLE-CRYSTAL, ORIENTED-CRYSTAL, AND EPITAXY GROWTH PROCESSES; NON-COATING |
| | 127 | SUGAR, STARCH, AND CARBOHYDRATES |
| | 156 | ADHESIVE BONDING AND MISCELLANEOUS CHEMICAL MANUFACTURE |
| | 261 | GAS AND LIQUID CONTACT APPARATUS |
| | 264 | PLASTIC AND NONMETALLIC ARTICLE SHAPING OR TREATING: PROCESSES |
| | 422 | CHEMICAL APPARATUS AND PROCESS DISINFECTING, DEODORIZING, PRESERVING, OR STERILIZING |
| | 423 | CHEMISTRY OF INORGANIC COMPOUNDS |
| | 426 | FOOD OR EDIBLE MATERIAL: PROCESSES, COMPOSITIONS, AND PRODUCTS |
| | 427 | COATING PROCESSES |
| | 428 | STOCK MATERIAL OR MISCELLANEOUS ARTICLES |
| | 430 | RADIATION IMAGERY CHEMISTRY: PROCESS, COMPOSITION, OR PRODUCT THEREOF |
| | 436 | CHEMISTRY: ANALYTICAL AND IMMUNOLOGICAL TESTING |
| | 502 | CATALYST, SOLID SORBENT, OR SUPPORT THEREFOR: PRODUCT OR PROCESS OF MAKING |
| | 503 | RECORD RECEIVER HAVING PLURAL LEAVES OR A COLORLESS COLOR FORMER, METHOD OF USE, OR DEVELOPER THEREFOR |
| | 507 | EARTH BORING, WELL TREATING, AND OIL FIELD CHEMISTRY |
| | 518 | CHEMISTRY: FISCHER-TROPSCH PROCESSES; OR PURIFICATION OR RECOVERY OF PRODUCTS THEREOF |

APPENDIX A (CONT.)
TECHNOLOGY AREAS BASED ON U.S. PATENT CLASSES

| TECHNOLOGY AREA | U.S. PATENT CLASS NUMBER | U.S. PATENT CLASS TITLE |
|---|---|---|
| MISCELLANEOUS CHEMICAL (CONT.) | 588 | HAZARDOUS OR TOXIC WASTE DESTRUCTION OR CONTAINMENT |
| | 987 | ORGANIC COMPOUNDS CONTAINING A Bi, Sb, As, OR P ATOM OR CONTAINING A METAL ATOM OF THE 6TH OR 8TH GROUP OF THE PERIODIC SYSTEM |
| | 159 | CONCENTRATING EVAPORATORS |
| | 201 | DISTILLATION: PROCESSES, THERMOLYTIC |
| | 202 | DISTILLATION: APPARATUS |
| | 203 | DISTILLATION: PROCESSES, SEPARATORY |
| | 210 | LIQUID PURIFICATION OR SEPARATION |
| | 136 | BATTERIES: THERMOELECTRIC AND PHOTOELECTRIC |
| | 204 | CHEMISTRY: ELECTRICAL AND WAVE ENERGY |
| | 205 | ELECTROLYSIS: PROCESSES, COMPOSITIONS USED THEREIN, AND METHODS OF PREPARING THE COMPOSITIONS |
| | 429 | CHEMISTRY: ELECTRICAL CURRENT PRODUCING APPARATUS, PRODUCT, AND PROCESS |
| | 55 | GAS SEPARATION |
| | 95 | GAS SEPARATION: PROCESSES |
| | 96 | GAS SEPARATION: APPARATUS |
| | 44 | FUEL AND RELATED COMPOSITIONS |
| | 48 | GAS: HEATING AND ILLUMINATING |
| | 196 | MINERAL OILS: APPARATUS |
| | 208 | MINERAL OILS: PROCESSES AND PRODUCTS |
| | 260 | CHEMISTRY OF CARBON COMPOUNDS |
| | 530 | CHEMISTRY: NATURAL RESINS OR DERIVATIVES; PEPTIDES OR PROTEINS; LIGNINS OR REACTION PRODUCTS THEREOF |
| | 532 | ORGANIC COMPOUNDS -- PART OF THE CLASS 532-570 SERIES |
| | 534 | ORGANIC COMPOUNDS -- PART OF THE CLASS 532-570 SERIES |
| | 536 | ORGANIC COMPOUNDS -- PART OF THE CLASS 532-570 SERIES |
| | 540 | ORGANIC COMPOUNDS -- PART OF THE CLASS 532-570 SERIES |
| | 544 | ORGANIC COMPOUNDS -- PART OF THE CLASS 532-570 SERIES |
| | 546 | ORGANIC COMPOUNDS -- PART OF THE CLASS 532-570 SERIES |
| | 548 | ORGANIC COMPOUNDS -- PART OF THE CLASS 532-570 SERIES |
| | 549 | ORGANIC COMPOUNDS -- PART OF THE CLASS 532-570 SERIES |
| | 552 | ORGANIC COMPOUNDS -- PART OF THE CLASS 532-570 SERIES |
| | 554 | ORGANIC COMPOUNDS -- PART OF THE CLASS 532-570 SERIES |
| | 556 | ORGANIC COMPOUNDS -- PART OF THE CLASS 532-570 SERIES |
| | 558 | ORGANIC COMPOUNDS -- PART OF THE CLASS 532-570 SERIES |

| TECHNOLOGY AREA | U.S. PATENT CLASS NUMBER | U.S. PATENT CLASS TITLE |
|---|---|---|
| MISCELLANEOUS CHEMICAL (CONT.) | 560 | ORGANIC COMPOUNDS -- PART OF THE CLASS 532-570 SERIES |
| | 562 | ORGANIC COMPOUNDS -- PART OF THE CLASS 532-570 SERIES |
| | 564 | ORGANIC COMPOUNDS -- PART OF THE CLASS 532-570 SERIES |
| | 568 | ORGANIC COMPOUNDS -- PART OF THE CLASS 532-570 SERIES |
| | 570 | ORGANIC COMPOUNDS -- PART OF THE CLASS 532-570 SERIES |
| | 585 | CHEMISTRY OF HYDROCARBON COMPOUNDS |
| | 75 | SPECIALIZED METALLURGICAL PROCESSES, COMPOSITIONS FOR USE THEREIN, CONSOLIDATED METAL POWERD COMPOSITIONS, AND LOOSE METAL PARTICULATE MIXTURES |
| | 148 | METAL TREATMENT |
| | 419 | POWDER METALLURGY PROCESSES |
| | 420 | ALLOYS OR METALLIC COMPOSITIONS |
| | 376 | INDUCED NUCLEAR REACTIONS: PROCESSES, SYSTEMS, AND ELEMENTS |
| | 976 | NUCLEAR TECHNOLOGY |
| | 437 | SEMICONDUCTOR DEVICE MANUFACTURING: PROCESS |
| | 505 | SUPERCONDUCTOR TECHNOLOGY: APPARATUS, MATERIAL, PROCESS |
| | 520 | SYNTHETIC RESINS OR NATURAL RUBBERS -- PART OF THE CLASS 520 SERIES |
| | 521 | SYNTHETIC RESINS OR NATURAL RUBBERS -- PART OF THE CLASS 520 SERIES |
| | 522 | SYNTHETIC RESINS OR NATURAL RUBBERS -- PART OF THE CLASS 520 SERIES |
| | 523 | SYNTHETIC RESINS OR NATURAL RUBBERS -- PART OF THE CLASS 520 SERIES |
| | 524 | SYNTHETIC RESINS OR NATURAL RUBBERS -- PART OF THE CLASS 520 SERIES |
| | 525 | SYNTHETIC RESINS OR NATURAL RUBBERS -- PART OF THE CLASS 520 SERIES |
| | 526 | SYNTHETIC RESINS OR NATURAL RUBBERS -- PART OF THE CLASS 520 SERIES |
| | 527 | SYNTHETIC RESINS OR NATURAL RUBBERS -- PART OF THE CLASS 520 SERIES |
| | 528 | SYNTHETIC RESINS OR NATURAL RUBBERS -- PART OF THE CLASS 520 SERIES |
| MISCELLANEOUS ELECTRICAL | 84 | MUSIC |
| | 181 | ACOUSTICS |
| | 984 | MUSICAL INSTRUMENTS |
| | 42 | FIREARMS |
| | 86 | AMMUNITION AND EXPLOSIVE-CHARGE MAKING |
| | 89 | ORDNANCE |
| | 102 | AMMUNITION AND EXPLOSIVES |
| | 149 | EXPLOSIVE AND THERMIC COMPOSITIONS OR CHARGES |
| | 219 | ELECTRIC HEATING |
| | 327 | MISCELLANEOUS ACTIVE ELECTRICAL NONLINEAR DEVICES, CIRCUITS, AND SYSTEMS |

APPENDIX A (CONT.)
TECHNOLOGY AREAS BASED ON U.S. PATENT CLASSES

| TECHNOLOGY AREA | U.S. PATENT CLASS NUMBER | U.S. PATENT CLASS TITLE |
|---|---|---|
| MISCELLANEOUS ELECTRICAL (CONT.) | 373 | INDUSTRIAL ELECTRIC HEATING FURNACES |
| | 392 | ELECTRIC RESISTANCE HEATING DEVICES |
| | 290 | PRIME-MOVER DYNAMO PLANTS |
| | 310 | ELECTRICAL GENERATOR OR MOTOR STRUCTURE |
| | 318 | ELECTRICITY: MOTIVE POWER SYSTEMS |
| | 320 | ELECTRICITY: BATTERY AND CONDENSER CHARGING AND DISCHARGING |
| | 322 | ELECTRICITY: SINGLE GENERATOR SYSTEMS |
| | 323 | ELECTRICITY: POWER SUPPLY OR REGULATION SYSTEMS |
| | 331 | OSCILLATORS |
| | 363 | ELECTRIC POWER CONVERSION SYSTEMS |
| | 388 | ELECTRICITY: MOTOR CONTROL SYSTEMS |
| | 330 | AMPLIFIERS |
| | 361 | ELECTRICITY: ELECTRICAL SYSTEMS AND DEVICES |
| | 174 | ELECTRICITY: CONDUCTORS AND INSULATORS |
| | 200 | ELECTRICITY: CIRCUIT MAKERS AND BREAKERS |
| | 307 | ELECTRICAL TRANSMISSION OR INTERCONNECTION SYSTEMS |
| | 313 | ELECTRIC LAMP AND DISCHARGE DEVICES |
| | 314 | ELECTRIC LAMP AND DISCHARGE DEVICES, CONSUMABLE ELECTRODES |
| | 315 | ELECTRIC LAMP AND DISCHARGE DEVICES: SYSTEMS |
| | 335 | ELECTRICITY: MAGNETICALLY OPERATED SWITCHES, MAGNETS, AND ELECTROMAGNETS |
| | 336 | INDUCTOR DEVICES |
| | 337 | ELECTRICITY: ELECTROTHERMALLY OR THERMALLY ACTUATED SWITCHES |
| | 338 | ELECTRICAL RESISTORS |
| | 362 | ILLUMINATION |
| | 257 | ACTIVE SOLID-STATE DEVICES (E.G., TRANSISTORS, SOLID-STATE DIODES) |
| | 326 | ELECTRONIC DIGITAL LOGIC CIRCUITRY |
| | 351 | OPTICS: EYE EXAMINING, VISION TESTING AND CORRECTING |
| | 352 | OPTICS: MOTION PICTURES |
| | 353 | OPTICS: IMAGE PROJECTORS |
| | 354 | PHOTOGRAPHY |
| | 355 | PHOTOCOPYING |
| | 359 | OPTICS: SYSTEMS (INCLUDING COMMUNICATION) AND ELEMENTS |
| | 372 | COHERENT LIGHT GENERATORS |
| | 385 | OPTICAL WAVEGUIDES |
| | 250 | RADIANT ENERGY |

## APPENDIX A (CONT.)
## TECHNOLOGY AREAS BASED ON U.S. PATENT CLASSES

| TECHNOLOGY AREA | U.S. PATENT CLASS NUMBER | U.S. PATENT CLASS TITLE |
|---|---|---|
| MISCELLANEOUS ELECTRICAL (CONT.) | 378 | X-RAY OR GAMMA RAY SYSTEMS OR DEVICES |
| MISCELLANEOUS MECHANICAL | 124 | MECHANICAL GUNS AND PROJECTORS |
| | 273 | AMUSEMENT DEVICES: GAMES |
| | 446 | AMUSEMENT DEVICES: TOYS |
| | 472 | AMUSEMENT DEVICES |
| | 473 | AMUSEMENT DEVICES: GAMES |
| | 482 | EXERCISE DEVICES |
| | 14 | BRIDGES |
| | 52 | STATIC STRUCTURES (E.G., BUILDINGS) |
| | 109 | SAFES, BANK PROTECTION, OR A RELATED DEVICE |
| | 135 | TENT, CANOPY, UMBRELLA, OR CANE |
| | 182 | FIRE ESCAPE, LADDER, OR SCAFFOLD |
| | 404 | ROAD STRUCTURE, PROCESS, OR APPARATUS |
| | 194 | CHECK-ACTUATED CONTROL MECHANISMS |
| | 49 | MOVABLE OR REMOVABLE CLOSURES |
| | 160 | FLEXIBLE OR PORTABLE CLOSURE, PARTITION, OR PANEL |
| | 256 | FENCES |
| | 267 | SPRING DEVICES |
| | 141 | FLUENT MATERIAL HANDLING, WITH RECEIVER OR RECEIVER COACTING MEANS |
| | 169 | FIRE EXTINGUISHERS |
| | 221 | ARTICLE DISPENSING |
| | 222 | DISPENSING |
| | 232 | DEPOSIT AND COLLECTION RECEPTACLES |
| | 239 | FLUID SPRINKLING, SPRAYING, AND DIFFUSING |
| | 291 | TRACK SANDERS |
| | 453 | COIN HANDLING |
| | 24 | BUCKLES, BUTTONS, CLASPS, ETC. |
| | 292 | CLOSURE FASTENERS |
| | 411 | EXPANDED, THREADED, DRIVEN, HEADED, TOOL-DEFORMED, OR LOCKED-THREADED FASTNER |
| | 63 | JEWELRY |
| | 277 | JOINT PACKING |
| | 279 | CHUCKS OR SOCKETS |
| | 285 | PIPE JOINTS OR COUPLINGS |
| | 403 | JOINTS AND CONNECTIONS |
| | 439 | ELECTRICAL CONNECTORS |

APPENDIX A (CONT.)
TECHNOLOGY AREAS BASED ON U.S. PATENT CLASSES

| TECHNOLOGY AREA | U.S. PATENT CLASS NUMBER | U.S. PATENT CLASS TITLE |
|---|---|---|
| MISCELLANEOUS MECHANICAL (CONT.) | 74 | MACHINE ELEMENT OR MECHANISM |
| | 173 | TOOL DRIVING OR IMPACTING |
| | 188 | BRAKES |
| | 192 | CLUTCHES AND POWER-STOP CONTROL |
| | 254 | IMPLEMENTS OR APPARATUS FOR APPLYING PUSHING OR PULLING FORCE |
| | 269 | WORK HOLDERS |
| | 303 | FLUID-PRESSURE BRAKE AND ANALOGOUS SYSTEMS |
| | 384 | BEARINGS |
| | 464 | ROTARY SHAFTS, GUDGEONS, HOUSINGS, AND FLEXIBLE COUPLINGS FOR ROTARY SHAFTS |
| | 474 | ENDLESS BELT POWER TRANSMISSION SYSTEMS OR COMPONENTS |
| | 475 | PLANETARY GEAR TRANSMISSION SYSTEMS OR COMPONENTS |
| | 476 | FRICTION GEAR TRANSMISSION SYSTEMS OR COMPONENTS |
| | 477 | INTERRELATED POWER DELIVERY CONTROLS INCLUDING ENGINE CONTROL |
| | 15 | BRUSHING, SCRUBBING, AND GENERAL CLEANING |
| | 34 | DRYING AND GAS OR VAPOR CONTACT WITH SOLIDS |
| | 38 | TEXTILES: IRONING OR SMOOTHING |
| | 68 | TEXTILES: FLUID TREATING APPARATUS |
| | 134 | CLEANING AND LIQUID CONTACT WITH SOLIDS |
| | 209 | CLASSIFYING, SEPARATING, AND ASSORTING SOLIDS |
| | 366 | AGITATING |
| | 494 | IMPERFORATE BOWL: CENTRIFUGAL SEPARATORS |
| | 16 | MISCELLANEOUS HARDWARE |
| | 70 | LOCKS |
| | 60 | POWER PLANTS |
| | 91 | MOTORS: EXPANSIBLE CHAMBER TYPE |
| | 92 | EXPANSIBLE CHAMBER DEVICES |
| | 123 | INTERNAL-COMBUSTION ENGINES |
| | 185 | MOTORS: SPRING, WEIGHT, OR ANIMAL POWERED |
| | 415 | ROTARY KINETIC FLUID MOTORS OR PUMPS |
| | 416 | FLUID REACTION SURFACES (I.E., IMPELLERS) |
| | 417 | PUMPS |
| | 418 | ROTARY EXPANSIBLE CHAMBER DEVICES |
| | 43 | FISHING, TRAPPING, AND VERMIN DESTROYING |
| | 47 | PLANT HUSBANDRY |
| | 54 | HARNESS |

**APPENDIX A (CONT.)**
**TECHNOLOGY AREAS BASED ON U.S. PATENT CLASSES**

| TECHNOLOGY AREA | U.S. PATENT CLASS NUMBER | U.S. PATENT CLASS TITLE |
|---|---|---|
| MISCELLANEOUS MECHANICAL (CONT.) | 119 | ANIMAL HUSBANDRY |
| | 168 | FARRIERY |
| | 231 | WHIPS AND WHIP APPARATUS |
| | 449 | BEE CULTURE |
| | 452 | BUTCHERING |
| | 150 | PURSES, WALLETS, AND PROTECTIVE COVERS |
| | 190 | TRUNKS AND HAND-CARRIED LUGGAGE |
| | 206 | SPECIAL RECEPTACLE OR PACKAGE |
| | 215 | BOTTLES AND JARS |
| | 217 | WOODEN RECEPTACLES |
| | 220 | RECEPTACLES |
| | 229 | ENVELOPES, WRAPPERS, AND PAPERBOARD BOXES |
| | 312 | SUPPORTS: CABINET STRUCTURE |
| | 383 | FLEXIBLE BAGS |
| | 40 | CARD, PICTURE, OR SIGN EXHIBITING |
| | 434 | EDUCATION AND DEMONSTRATION |
| | 132 | TOILET |
| | 7 | COMPOUND TOOLS |
| | 81 | TOOLS |
| TRADITIONAL MANUFACTURING | 2 | APPAREL |
| | 12 | BOOT AND SHOE MAKING |
| | 36 | BOOT, SHOES, AND LEGGINGS |
| | 69 | LEATHER MANUFACTURES |
| | 112 | SEWING |
| | 223 | APPAREL APPARATUS |
| | 450 | FOUNDATION GARMENTS |
| | 101 | PRINTING |
| | 118 | COATING APPARATUS |
| | 184 | LUBRICATION |
| | 199 | TYPE CASTING |
| | 276 | TYPESETTING |
| | 281 | BOOKS, STRIPS, AND LEAVES |
| | 283 | PRINTED MATTER |
| | 400 | TYPEWRITING MACHINES |
| | 401 | COATING IMPLEMENTS WITH MATERIAL SUPPLY |
| | 462 | BOOKS, STRIPS, AND LEAVES FOR MANIFOLDING |

APPENDIX A (CONT.)
TECHNOLOGY AREAS BASED ON U.S. PATENT CLASSES

| TECHNOLOGY AREA | U.S. PATENT CLASS NUMBER | U.S. PATENT CLASS TITLE |
|---|---|---|
| TRADITIONAL MANUFACTURING (CONT.) | 99 | FOODS AND BEVERAGES: APPARATUS |
| | 65 | GLASS MANUFACTURING |
| | 29 | METAL WORKING |
| | 53 | PACKAGE MAKING |
| | 59 | CHAIN, STAPLE, AND HORSESHOE MAKING |
| | 76 | METAL TOOLS AND IMPLEMENTS, MAKING |
| | 79 | BUTTON MAKING |
| | 131 | TOBACCO |
| | 147 | COOPERING |
| | 157 | WHEELWRIGHT MACHINES |
| | 163 | NEEDLE AND PIN MAKING |
| | 164 | METAL FOUNDING |
| | 227 | ELONGATED-MEMBER-DRIVING APPARATUS |
| | 266 | METALLURGICAL APPARATUS |
| | 270 | SHEET-MATERIAL ASSOCIATING |
| | 300 | BRUSH, BROOM, AND MOP MAKING |
| | 412 | BOOKBINDING: PROCESS AND APPARATUS |
| | 445 | ELECTRIC LAMP OR SPACE DISCHARGE COMPONENT OR DEVICE MANUFACTURING |
| | 493 | MANUFACTURING CONTAINER OR TUBE FROM PAPER; OR OTHER MANUFACTURING FROM A SHEET OR WEB |
| | 162 | PAPER MAKING AND FIBER LIBERATION |
| | 5 | BEDS |
| | 108 | HORIZONTALLY SUPPORTED PLANAR SURFACES |
| | 211 | SUPPORTS: RACKS |
| | 248 | SUPPORTS |
| | 297 | CHAIRS AND SEATS |
| | 19 | TEXTILES: FIBER PREPARATION |
| | 26 | TEXTILES: CLOTH FINISHING |
| | 28 | TEXTILES: MANUFACTURING |
| | 57 | TEXTILES: SPINNING, TWISTING, AND TWINING |
| | 66 | TEXTILES: KNITTING |
| | 87 | TEXTILES: BRAIDING, NETTING, AND LACE MAKING |
| | 139 | TEXTILES: WEAVING |
| | 245 | WIRE FABRICS AND STRUCTURE |
| | 289 | KNOTS AND KNOT TYING |

**APPENDIX A (CONT.)**
**TECHNOLOGY AREAS BASED ON U.S. PATENT CLASSES**

| TECHNOLOGY AREA | U.S. PATENT CLASS NUMBER | U.S. PATENT CLASS TITLE |
|---|---|---|
| VEHICLES, EARTHWORKING & AGRICULTURAL MACHINERY | 37 | EXCAVATING |
| | 56 | HARVESTERS |
| | 111 | PLANTING |
| | 166 | WELLS |
| | 171 | UNEARTHING PLANTS OR BURIED OBJECTS |
| | 172 | EARTH WORKING |
| | 175 | BORING OR PENETRATING THE EARTH |
| | 299 | MINING OR IN SITU DISINTEGRATION OF HARD MATERIAL |
| | 405 | HYDRAULIC AND EARTH ENGINEERING |
| | 410 | FREIGHT ACCOMMODATION ON FREIGHT CARRIER |
| | 104 | RAILWAYS |
| | 105 | RAILWAY ROLLING STOCK |
| | 114 | SHIPS |
| | 152 | RESILIENT TIRES AND WHEELS |
| | 180 | MOTOR VEHICLES |
| | 191 | ELECTRICITY: TRANSMISSION TO VEHICLES |
| | 213 | RAILWAY DRAFT APPLIANCES |
| | 238 | RAILWAYS: SURFACE TRACK |
| | 244 | AERONAUTICS |
| | 246 | RAILWAY SWITCHES AND SIGNALS |
| | 278 | LAND VEHICLES: ANIMAL DRAFT APPLIANCES |
| | 280 | LAND VEHICLES |
| | 293 | VEHICLE FENDERS |
| | 295 | RAILWAY WHEELS AND AXLES |
| | 296 | LAND VEHICLES: BODIES AND TOPS |
| | 298 | LAND VEHICLES: DUMPING |
| | 301 | LAND VEHICLES: WHEELS AND AXLES |
| | 305 | WHEEL SUBSTITUTES FOR LAND VEHICLES |
| | 440 | MARINE PROPULSION |
| | 441 | BUOYS, RAFTS, AND AQUATIC DEVICES |

APPENDIX B

INTERVIEW GUIDE

Intro: I am conducting a research project for the U.S. Small Business Administration on foreign patenting patterns of U.S. businesses. I have done a quantitative analysis of data on patenting in the United States and other major countries by small and large U.S. businesses. Now we would like to get some "real world" insights into these same issues. I have some questions that should take only 10 minutes of your time.

First I would like some information on your experience with foreign patenting.

1. About how many U.S. patents does your company have? (for use as a baseline) i.e., active patents (not expired)

___ 0-5
___ 6-10
___ 11-25
___ 26+
___ Don't know
___ Other (specify)_____

2.a. How much foreign patenting does your company do?
- We have never patented in foreign countries
- We have patented in foreign countries a few times
- We patent some of our inventions in foreign countries
- We patent most of our inventions in foreign countries
- Don't Know
- Other (specify) _____

2.b. How important is patenting in foreign countries to your company?
1 Not very important
2
3 Moderately important
4
5 Extremely important (Vital)

2.c. Why is/isn't foreign patenting important?
- We have no foreign sales,
- Foreign markets are/are not important to us,
- To prevent foreign competitors from using our technology,
- To provide a basis for licensing to a foreign partner
- There is not much of a foreign market for our product
- Other (specify)

3.a. Have you encountered problems or barriers in seeking patent protection in foreign countries?
- Yes
- No
- Don't know
- Other (specify)

3.b. If yes, what were they?
- Cost,
- Risk associated with disclosure,
- Difficulty of enforcement,
- Delay,
- Other (specify)

3.c. How serious were they? Rank each of the above problems on the following scale:
1 Not very serious
2
3 Moderately serious
4
5 Extremely serious

4. In what field of technology are most of your inventions? (e.g., chemical, electrical, mechanical, biotechnology, other (specify))_____

5. Do your inventions arise from a formal program of research and development, engineering improvements, other?

6. How important are patented inventions to your business?
1 Not very important
2
3 Moderately important
4
5 Extremely important (Vital)

Now I would like to know a little more about your company, so I can put the patent information in context.

1. What business are you in? What do you produce?

2. How many employees do you have?
___ 1-25
___ 26-100
___ 101-250
___ 250+

3. What percent of sales, approximately, comes from foreign sales?
1 0-25%
2 26-50%
3 51-75%
4 76-100%
5 Don't know/no answer
(Or, Do you serve primarily the U.S. market, foreign markets, or a mix?
Or, Are your sales domestic-only or do you have foreign sales?)

4. Is the company growing? (rapidly? stable? shrinking?)

5.a. Does the company have more than one location?
- Yes
- No

5.b. If yes, are any in foreign countries?
- Yes - No

6. Is the company publicly owned, privately owned, family owned, an individual?

7.a. Is the company headquartered in the U.S.?
- Yes
- No

7.b. If no, where? _____

8. How old is the business in years?_____

9. Are other U.S. companies in this business generally small, large, or a mix?

10.a. Has the company received U.S. government funds for research and development or procurement?
- Yes
- No

10.b. If yes, is such funding an important part of your business?
- Yes
- No

10.c. If yes, what agency and program has provided most of the funding?

11. Was the company founded by a technological entrepreneur?
- Yes
- No
- Don't know

11. b. If yes, is that person still running the company?
- Yes
- No
- Don't know

## APPENDIX C

### Tallied Responses from Interviews

Responses are tallied from companies with low involvement in foreign patenting (LOW) and those with high involvement in foreign patenting (HIGH). N=8 companies

1. About how many U.S. patents does your company have? (for use as a baseline) I.e., active patents (not expired)

| | LOW | HIGH |
|---|---|---|
| 0-5 | 1 | 0 |
| 6-10 | 0 | 0 |
| 11-25 | 2 | 1 |
| 26+ | 1 | 3 |

2.a. How much foreign patenting does your company do?

| | LOW | HIGH |
|---|---|---|
| Never | 1 | 0 |
| A few times | 2 | 0 |
| Some | 0 | 2 |
| Most | 1 | 2 |

2.b. How important is patenting in foreign countries to your company?

| | LOW | HIGH |
|---|---|---|
| 1 Not very important | 2 | 0 |
| 2 | 2 | 0 |
| 3 Moderately important | 0 | 1 |
| 4 | 0 | 1 |
| 5 Extremely important (Vital) | 0 | 2 |

2.c. Why is/isn't foreign patenting important? (Answers add to more than 8, because multiple responses were allowed.)

| | LOW | HIGH |
|---|---|---|
| Foreign sales (existence or lack of) | 2 | 4 |
| Foreign competitors (existence or lack of) | 1 | 0 |
| Licensing | 0 | 2 |
| Lack of protection | 2 | 0 |

3.a. Have you encountered problems or barriers in seeking patent protection in foreign countries?

| | LOW | HIGH |
|---|---|---|
| Yes | 2 | 3 |
| No | 1 | 1 |
| Never patented abroad | I | 0 |

3.b. If yes, what were they?

| | LOW | HIGH |
|---|---|---|
| Cost | 2 | 2 |
| Foreign opposition procedures | 0 | 1 |
| Narrow, inadequate protection | 2 | 2 |
| Not a level playing field | 1 | 1 |
| Different laws | 0 | 1 |
| Risk in disclosing | 1 | 0 |
| Difficulty of enforcing | 1 | 1 |
| Delay in getting protection | 1 | 0 |

3.c. How serious were they?

| | | LOW | HIGH |
|---|---|---|---|
| 1 | Not very serious | 1* | 1** |
| 2 | | 0 | 0 |
| 3 | Moderately serious | 0 | 1*** |
| 4 | | 1 | 1 |
| 5 | Extremely serious | 1# | 1*** |

* Europe ** Opposition procedures *** Cost
# Far East

4. In what field of technology are most of your inventions?

| LOW | HIGH |
|---|---|
| Electronics | Pollution control equipment |
| Electric switches | Fluid mechanics |
| Food packaging machinery | Glass tempering and bending |
| $CO_2$ lasers | Biotechnology |

5. Do your inventions arise from a formal program of research and development?

| | LOW | HIGH |
|---|---|---|
| Yes | 4 | 4 |
| No | 0 | 0 |

6. How important are patented inventions to your business?

| | | HIGH | LOW |
|---|---|---|---|
| 1 | Not very important | 0 | 0 |
| 2 | | 0 | 0 |
| 3 | Moderately important | 0 | 1 |
| 4 | | 1 | 1 |
| 5 | Extremely important (Vital) | 3 | 2 |

Now I would like to know a little more about your company, so I can put the patent information in context.

1. What business are you in? What do you produce?

| LOW | HIGH |
|---|---|
| Electronics | Pollution control equipment |
| Electric switches | Fluid mechanics measuring instruments |
| Food packaging machinery | Glass tempering and bending machinery |
| $CO_2$ lasers | Pharmaceuticals |

2. How many employees do you have?

| | LOW | HIGH |
|---|---|---|
| 1-25 | 0 | 0 |
| 26-100 | 1 | 0 |
| 101-250 | 2 | 2 |
| 250+ | 0 | 2 |
| No response | 1 | 0 |

3. What percent of sales, approximately, comes from foreign sales?

| | | LOW | HIGH |
|---|---|---|---|
| 1 | 0-25% | 3 | 0 |
| 2 | 26-50% | 0 | 2 |
| 3 | 51-75% | 0 | 1 |
| 4 | 76-100% | 0 | 0 |
| 5 | No answer | 1 | 1 |

4. Is the company growing? (rapidly? stable? shrinking?)

| | LOW | HIGH |
|---|---|---|
| Growing | 3 | 3 |
| Stable | 0 | 1 |
| Shrinking | 1 | 0 |

5.a. Does the company have more than one manufacturing location?

| | LOW | HIGH |
|---|---|---|
| Yes | 0 | 0 |
| No | 4 | 4 |

6. Is the company publicly owned, privately owned, family owned, an individual?

| | LOW | HIGH |
|---|---|---|
| Public | 0 | 2 |
| Private | 3 | 2 |
| Family | 1 | 0 |

7.a. Is the company headquartered in the U.S.?

| | LOW | HIGH |
|---|---|---|
| Yes | 4 | 4 |
| No | 0 | 0 |

8. How old is the business in years?

| | LOW | HIGH |
|---|---|---|
| 0-10 | 0 | 0 |
| 11-20 | 2 | 1 |
| 21-30 | 1 | 1 |
| 31-40 | 1 | 2 |

9. Are other U.S. companies in this business generally small, large, or a mix?

| | LOW | HIGH |
|---|---|---|
| Small | 1 | 0 |
| Large | 1 | 0 |
| Mix | 2 | 4 |

10.a. Has the company received U.S. government funds for research and development or procurement?

| | LOW | HIGH |
|---|---|---|
| Yes | 0 | 3 |
| No | 4 | 1 |

10.b. If yes, is such funding an important part of your business? (N=3)

| | LOW | HIGH |
|---|---|---|
| Yes | 0 | 0 |
| No | 0 | 3 |

10.c. If yes, what agency and program has provided most of the funding?

EPA, DOD, Army, DOD SBIR, DOE, NIH

11.a. Was the company founded by a technological entrepreneur?

| | LOW | HIGH |
|---|---|---|
| Yes | 4 | 4 |
| No | 0 | 0 |

11. b. If yes, is that person still running the company?

| | LOW | HIGH |
|---|---|---|
| Yes | 2 | 1 |
| No | 2 | 3 |

Chairman ROHRABACHER. We appreciate both of you being with us today.

We're joined by Mr. Ehlers, one of the scientists who worked with us in Congress, a Member of Congress. So we're very happy to have you with us.

Do you have an opening statement?

Mr. EHLERS. No.

Chairman ROHRABACHER. Mr. Lehman, let me ask you a few questions and then we will let the rest of the panel have a chance as well. You mentioned your view on what is I guess one of the center areas of disagreement in terms of how we view the publishing of a patent application before the patent is issued.

First of all, is it your position then that the people in China and Japan and elsewhere where we have developing countries that have technological capabilities, that when they receive this information about American patent applications and new ideas that they will just decide on their own that they are not going to take advantage of the information?

I didn't quite understand what was going to keep them from using that information that they now do not have that's available to them, and we're giving them a great deal of information about our creative ideas with these changes that you're proposing, and you're telling us that they will not take advantage of it to steal these ideas or to utilize them to the detriment of the inventor?

Mr. LEHMAN. Mr. Chairman, first of all, as you probably know, the patent system works in such a way that you only have a patent in a country that you file a patent application for. So when you file a patent application in the United States you only have protection in the United States. If you don't have a patent issued in another country you don't have protection there.

Chairman ROHRABACHER. But of course if we change the rules in the United States so that people outside the country have information about patents that have been filed for in the United States, but have not yet been granted, everybody in the world has the information. I mean there is going to be a line at your door of people from foreign countries heading for the Xerox machine.

Mr. LEHMAN. Let me explain and start by laying a foundation what I was about to say, and that is that obviously what we want is for people to have exclusivity over their inventions in the United States and have identical exclusivity in a timely manner in every other market in the world. That is what we are striving to achieve.

At the present time, patent systems are fair to middling in many other countries, but Americans use those patent systems, and we want them to use those patent systems, and where they file for patent protection in other countries in every case the invention is disclosed at 18 months. It's only in the United States that it isn't. So it is the United States' public domain interest that is harmed, and there is an important interest there, but not having that information made available here.

Now with respect to disclosure at 18 months, I've already indicated to you that there are going to be very few cases in which a patent will be disclosed at 18 months when it has not already been issued prior to that time because of our reengineering that we're undertaking where we're going to bring down patent pendency.

Chairman ROHRABACHER. But you'll have to admit that that's your projection, and also you may not be the head of the Patent Office forever, and maybe there will be someone who isn't quite as efficient or quite as honest as you are in the years ahead who may delay these things, and then aren't our inventors at the mercy of the competency and honesty of the who run the department at that point as compared to now when their information is not published until it's issued?

Mr. LEHMAN. The point is that there will be few patents that will be published before they are issued, and furthermore those that are published, the patentee will have a right, a legal right to royalties if someone uses that invention. That is why I want to make clear that this is more a don't-tread-on-me question. It's putting out notice to the rest of the world that you've got dibs on this invention as opposed to just the opposite.

Now we can disagree on that, but I can tell you that it is our judgment that this not going to be a situation in which we're going to have foreign agents running around the Patent Office looking for these 18-months inventions, but in fact it's going to work just the opposite. It's going to put people around the world on notice that we have dibs on this invention and they'll stay out of it and they'll do something different. And, by the way, that will also enable us to be more aggressive in seeking stronger international patent protection.

Chairman ROHRABACHER. To get to your central point, you're saying that there is legal recourse for someone, for example, if their idea is published before the patent is issued?

Mr. LEHMAN. That's correct, yes.

Chairman ROHRABACHER. However, those people who have violated these rights or who have infringed on the patent pending, the information that they now have available to them, which they wouldn't have unless we changed the system, they will be making profit by infringing on that information, and aren't we going to end up with a situation of those people who are infringers, thieves or whatever you want to call them, using profit from somebody else's idea to defeat them in court as compared to the person who is the inventor who has applied, the application, who doesn't have that source of revenue because he is unable until that patent is issued to actually receive the maximum benefits from his own invention? So you're strengthening the thieves and the guy who is the inventor is left not only at the mercy of the thieves, but the thieves are being bolstered by this man's own invention.

Mr. MONTE. That's the way it works.

Mr. LEHMAN. Well ultimately if people want to engage in theft they're going to do so and we haven't figured out how to stop theft in the world yet. We provide people with remedies for that. We provide people in the case of patent infringement with criminal remedies when there has been criminal patent infringement, and we provide people with civil remedies where there has been civil infringement, and the legislation that you have before you very specifically provides civil remedies for people who have been aggrieved.

Let me say that we do have some experience in other countries in the world that we can look at, and I'm not saying we're emulat-

ing what they're doing, but there are countries in the world, Germany, for example, which is not a country where we generally think of people as being dishonest and so on and so forth, and we see there that for the most part 18-month publication does not result in the kind of theft that you're talking about. So we have some experience to go on.

In fact, it has the positive benefits that I outlined, and that is that it puts people on notice to go and invest their resources and their money elsewhere, in some other invention and don't tread on me.

Chairman ROHRABACHER. Mr. Bibbens, would you like to comment on that?

Mr. BIBBENS. Yes. Two items. I think we have to go back to the opening comments that Mr. Roemer made. The United States is unique in the world in having innovative small companies as a major part of the business environment. We have other countries who are coming to us to find out how to emulate the innovative process we have with small businesses here in the United States. So we're starting in a leadership position, and a key part of that was the patent protection. We do not want to emulate the kinds of environments we have in other countries. They are trying to emulate what we have.

As far as the pre-publication to a small company, I feel very strongly having been a very successful small business person in which I was making decisions as to whether I spent another $50,000 for a very fine piece of capital equipment for my technologist or did I file a patent. Those are very conscious decisions made one by one, and the last thing I want is to have that $50,000 cost for a patent application with all the fees and all the work that it takes within the company and outside the company to file it, I don't want to engage in a battle with a hoard of attorneys from a large firm.

In my time in a large firm the decisions we made about how we approached a battling with a small company to obtain a license with them was not whether we spent $50,000. It was did we hire a senior partner of a law firm or a junior partner and how important was that business to us.

The kind of questions that a large firm and a small firm look at are entirely different in this, and one of the concerns we have is that pre-publication before grant is going to absolutely devastate small businesses because they just do not have the resources to go into that battle.

Chairman ROHRABACHER. Are you trying to tell me you don't really trust these multinational corporations not to use the information they have for their own leverage against the innovator?

Mr. BIBBENS. I absolutely trust them to use that information in a normal competitive environment and not just multinationals, but companies within the United States. That's in the best interest of their shareholders. It's proper in our competitive environment, and they would be remiss if they did not use that competitive pressure.

Chairman ROHRABACHER. Thank you very much.

I would like one more line of questioning with Mr. Lehman, and then I'll open it up for other Members of the Committee.

Mr. Lehman, in terms of the "submarine" patent issue, one of the driving forces that we are told, or one of the forces that was driving this whole issue for change in the way we handle our patents and that led us to change this system that we had for 134 years of a guaranteed 17 years of patent protection was the emergence of "submarine" patents.

Now could you please explain or expand upon your position that there is no way for the Patent Office to actually handle this problem without actually changing the length of the patent term and making this dramatic change in the fundamental patent protection of the American people.

We have basically had a major change. We've had this guaranteed 17-year patent term, and no matter how long it takes for your patent to be issued, you're going to have 17 years to recoup. We have now taken that away, and I believe your argument has been that the driving force was the emergence of "submarine" patents has made that imperative because there is no other way to handle "submarine" patents and they are threatening the viability of the system.

Could you explain that position to me and explain to me why the Patent Office doesn't have mechanisms to flag people who are trying to drag out the process or who are manipulating the process. Can't this thing be settled by decisions and effective use of your organization itself?

Mr. LEHMAN. Well, Mr. Chairman, we have come up with a solution, among other things, to the "submarine" patent problem, and that is the legislation that we're talking about today. But I would like to say that that legislation was not something that I just dreamed up out of my head, and I would like to just say a word about the process as to how we concluded to handle the "submarine" patent problem and other problems that I've described. You'll notice that I think this legislation has merits quite far beyond the "submarine" patent issue, but "submarine" patents are a very important issue.

Before we did anything on this we had public hearings. Now this is not some hair-brain, left wing Clinton Administration idea. This is something that has been around for a long period of time. The Bush Administration had proposed the very same legislation and more. They had proposed some legislation that small business people did not like at all, and that was to change to a first-to-file system.

The very first thing that I did when I became the Commissioner of Patents and Trademarks was that I had public hearings on this set of issues and we took testimony. And let me say that there was absolutely no question, in deference to our predecessor Administration, that the majority of witnesses favored basically the preexisting Bush Administration proposals, which included a 20-year term, 18-month publication, reexamination and a change from a first-to-invent to a first-to-file system.

But independent inventors were very concerned about changes in the system, and after listening to the testimony it was my view that the case had not been made, even though the majority favored all of these previously proposed changes, the case had not been made for a shift to the first-to-file system because, even though a

majority of people favored it, independent inventors felt very strongly about this.

Now if you look back at those hearings, we did not hear a lot of complaints from the small business community. In fact, there were only about three people out of over 30 witnesses who suggested that they had any problems whatsoever with the 20-year term.

Furthermore, we then went on and had an additional set of hearings where we targeted on what is probably the greatest source of high-tech development, including small business and entrepreneurial development in this country, in Silicon Valley, and let me say that it was out of those hearings in Silicon Valley and testimony precisely by entrepreneurs there that we decided to embrace the idea of the 18-month publication and reexamination, and one of the principal reasons that we did that was because that was a community that was very concerned about "submarine" patents, and they proposed this as the remedy.

Chairman ROHRABACHER. Are you testifying today that the Bush Administration was in favor of eliminating the guaranteed 17-year term?

Mr. LEHMAN. That is correct, yes.

Chairman ROHRABACHER. When did that happen?

Mr. LEHMAN. There was a Commission that was set up by President Bush and Chaired by Secretary of Commerce Mosbacher that came out with an extensive report, and I would be happy to submit that to you for the record.

Chairman ROHRABACHER. And the Bush Administration did propose that?

Mr. LEHMAN. That is correct, yes.

By the way, I would like to make also the point that I speak for the Administration. It's very important, and I respect Mr. Bibbens' point of view, but he represents the Office of Small Business Advocacy within the Small Business Administration, which is independent of the Small Business Administration itself and does not speak for the Small Business Administration or for the Administration.

Chairman ROHRABACHER. All right. I think that's well said. Mr. Bibbens is speaking not for the Administration, and I think he made that very clear, but I think he also made clear I might add that he's speaking for many small businesses, if not all small business organizations in the country that I know of.

Mr. BIBBENS. And I would like to comment that we have not been able to determine that the Small Business Administration has had an opportunity to comment on the legislation as proposed by USPTO.

In addition to submitting my testimony to Mr. Lehman, we also submitted it to the National Economic Council and to the Department of Commerce's Under Secretary for Technology Policy because we want to bring these issues to the Administration and make sure they have a full hearing.

Chairman ROHRABACHER. All right. Thank you very much.

I will turn now to Mr. Roemer.

Mr. ROEMER. Thank you, Mr. Chairman.

Mr. Lehman, certainly the Chairman has been grilling you about a host of different things here in his questioning, and Mr. Bibbens

has brought up some, I think, important points as well that you have responded to and some of which you have not.

We've heard that the changes that we're considering with these different legislative proposals may affect big business differently than small emerging market areas, or differently rather than mature markets, and maybe public universities differently than the private sector.

Let me ask you specifically in the legislative proposals that we're considering here, how might a large pharmaceutical company, such as Eli Lilly respond to the changes, and how might it affect biotechnology companies? Two different questions.

Mr. LEHMAN. Mr. Roemer, the pharmaceutical industry, PHARMA, I believe specifically endorsed this legislation. So that represents the views of the pharmaceutical industry.

BIO, the Biotechnology Industry Association, it's my understanding has taken no official position on the legislation. If you look at the organizations and groups which support this legislation, overwhelmingly every single professional and bar association and every single organized industry group favors these three bills.

Mr. ROEMER. Let me follow up with that as well, too. The Chairman asked you about "submarine" patents and some of the problems we encounter there. How do you think that the practice of patent flooding where companies can make minor changes to a patented invention in order to circumvent the claims of another patent would be affected by the various patent proposals that we are considering here today?

Mr. LEHMAN. Well, first of all, Mr. Menendez mentioned patent flooding. Patent flooding is generally something that we associate not with our system, but is a problem that has taken place in Japan.

And let me start out by saying that when I came into this position, my view, the principal problem that we had internationally in the patent system was the total inadequacy of patent protection in Japan. Japan did not provide timely exclusivity for U.S. innovators, and that's extremely important because that's the second largest market in the world, and it was used as a trade barrier to prevent our effective access of our high-technology products to Japan.

Now we have made a great deal of progress in changing that system. Today, unlike when we took office, Japan now guarantees any American patent applicant who requested at the time of filing that their patent will be issued within 36 months or denied if they don't get patent protection, and it will no longer be possible to engage in the kinds of patent flooding practices that Mr. Menendez's constitute referred to and, unfortunately, that was under the old system.

That's because under the old system in Japan you would file a patent application. Your patent application would be published so Japanese industry would know about it, and then the Japanese companies could come in and file an opposition within the Japanese Patent Office, hold you up sometimes 7, 8, 9, 10 or 11 years, keeping in mind that their 20-year clock was running, use your innovation, and then if you finally won the battle, what they would then do is they would flood with very similar patents and try to make the argument that they had invented something very similar to

yours. And then at the end of the process, if you went through all of that, you would end up having to at best get just simply the right to some royalties because the Japanese system had something called Defendant Patent Compulsory Licenses in it, meaning that if anybody came up with a bell or a whistle that they attached to your invention and got a separate patent on that through patent flooding and other techniques, then they would be able to use that bell or whistle to basically expropriate your underlying technology.

Now one of the things that we have done is that we have an agreement with Japan where they have agreed to eliminate virtually every one of those practices, and that agreement has been already enacted into law by the Japanese Diet. So it is now Japanese law that any American applicant can have final disposition of his patent application within 36 months and there will no longer be any opposition procedure, and we will no longer have the Defendant Patent Compulsory Licensing.

Mr. ROEMER. When was that passed in the Diet?

Mr. LEHMAN. Last year.

Mr. ROEMER. And we have seen a marked difference.

Mr. LEHMAN. December of 1994. Pardon me?

Mr. ROEMER. Have you been able to study what differences have ensued?

Mr. LEHMAN. Yes. There is no question that they're abiding by those procedures. Now keep in mind that there is a time lag in anybody's system, in the reform, because it does take time to get the patent, even if you lower the time to 36 months or 18 months. So it will be a few years before we see the effect in the marketplace, but we will see it, and I can tell you this will be the effect. For the first time American companies will have timely exclusivity in Japan.

And do you know what that means? That means they don't have to take a royalty and they don't have to license the product. If they want to make that product in Newark or Detroit or Seattle and put it on a ship and send it over there and buy this product rather than just get a license, that product will be manufactured in this country and they'll have to buy it.

It means also that if the American company wants to say we don't want to have our products sold under the Hitachi trademark or something like that, we want to set up our own distribution system, we want to sell under our own trademark and hire our own sales people, they'll be able to do so.

This is a very, very significant breakthrough in our capacity to penetrate that market, which has clearly been rigged against us in the past. And these reforms that we have made are part of a global picture in which we are trying to get a patent system that provides uniformity and timely exclusivity to American innovators on a global basis.

Mr. ROEMER. Lastly, let me just ask you how will these patent law changes affect energy and environmental research at federal facilities? Is there some comment you could make with respect to that question?

Mr. LEHMAN. Obviously federal research is transferred to the private sector. In my view, the changes themselves don't directly affect the federal agency at all, but they will have the same effect

on federally-sponsored research that they have on everybody else's research. It will enable us to have a more efficient patent system and to get people in and out of the Patent Office very quickly. And, by the way, this is particularly important for the federal invention. You don't even have something for the private sector to obtain an exclusive license and put all the additional millions necessary to produce competitive products in until you get the patent out of the Patent and Trademark Office.

It's also very important in the case of these federal technologies that there be disclosure. We don't want some innovator in some other part of the country, large or small, to be wasting money on something that the Department of Energy has already done and has got a patent on and may end up licensing to a competitor. We want them to know that, and they'll spend their energies on something else. That's what part of 18-month publication is about.

Mr. ROEMER. Thank you, Mr. Lehman.

Chairman ROHRABACHER. Mr. Ehlers, would you like to proceed?

Mr. EHLERS. I have no questions.

Chairman ROHRABACHER. All right.

Ms. Rivers?

Ms. RIVERS. No questions.

Chairman ROHRABACHER. Well I have a couple more questions, and then we'll move on to the next panel.

I find your sense of optimism about what the Japanese will do to be fascinating. I can only remember the time when I began being aware of how the Japanese deal with Americans was back when I was a journalist, and that was like 30 years ago, and people were always claiming to me about what the Japanese are going to because they've made this agreement.

I mean I can remember covering a press conference literally back in 1974 about how we've reached this great agreement that the Japanese are going to open their markets now. I remember that. That was way back in 1974, and I still get people coming in my door from my district telling me that they can't get their product on the Japanese market. I guess if you believe that people are not going to take advantage of information that they have for their own benefit at the expense of the small inventor I guess you also believe that the Japanese will do all these wonderful things. I am a skeptic. I usually wait for the Japanese and the Chinese and different people who operate under a different system than ours, I wait until they actually start doing it.

The change in law that you referred to, Mr. Lehman, I hope that it is enforced, and I hope that it does change behavior. I will say that having changed our basic structure so that now it emulates the way Japan used to be, or the way Japan actually is today in the sense that we no longer guarantee 17-years worth of patent protection, no matter how long it takes to go through the system, that 20-year process before to how we've now changed our's has encouraged people to do the flooding that you were talking about.

I'm just afraid that what's going to happen is not that the Japanese are going to become more like us, but that our people now are going to have more vulnerabilities to what the Japanese people themselves have experienced for these last two and three decades

where you've got huge, it isn't business interests, who run roughshod over their own people.

Now please feel free to come back on that and give us your opinion. I just made a point. So feel free.

Mr. LEHMAN. As I said at the beginning, one of the things that is so uncomfortable about this debate is that I think your motivations and mine are identical. There is not one difference in them at all. We believe very strongly that you have to have the property rights incentive, the intellectual property system to promote innovation and get it to the marketplace, and we are very patriotic and we want our country to be able to enjoy the appropriate rights to our innovations on a global basis.

Our disagreements I suppose result in how we achieve those objectives, and I have tried to explain to you the very orderly and systematic process that we arrived at to develop these policies, and we believe that they will be successful and indeed they are working.

Now we are making progress with Japan, and it is very tough, on a wide variety of fronts, and we're making progress with other countries. But basically there are only two approaches. One is to keep slogging at it the way we are and to get the kind of changes that saw the Diet make and to work with other countries. Right now we're involved with cracking down on China and other places in the world.

The only other solution is to do something that it's quite clear that the American people are not prepared to do, and that is to put a wall around the United States and simply have this be a island in the world. When we look at China we see a country that tried to do that a thousand years ago and we see where they have come today, and I think that's obviously not an option for us.

I'm trying to remember if you were a Marine or not.

Chairman ROHRABACHER. My father was a Marine. I was raised on Marine bases.

Mr. LEHMAN. I would respectfully suggest that the majority in Congress has given the Administration a difficult time in sending troops to Haiti for peacekeeping and they're not going to send troops down the Ginza on patent infringement. So we're just going to have to keep negotiating these treaties and do our best.

Chairman ROHRABACHER. I think the disagreement we're talking about is that I believe that fundamentally, and obviously you disagree with that, but fundamentally we've actually made it easier—we haven't made it more difficult for our people, but we've made it easier for other people to get their hands on information that they would not otherwise have, and we have made it more difficult for our own people to defend their ideas and their intellectual property rights.

The Administration came back about two years ago with a piece of paper from the Chinese claiming that they have now agreed to shut down and not to copy any more of our CDs, and our intellectual property rights in the entertainment business wouldn't be trounced upon any more, and we found out that after they signed this agreement and it passed into law that instead of closing down the plants that were copying all of our videotapes and CDs, they've open up twice as many of them now and they're violating the prop-

erty rights of American innovators even greater than before they made the agreement.

To come to grips with this doesn't mean that we have to put a wall around the United States, but perhaps small businessmen who have limited resources understand that they need a safe haven in this world where at least in one market they will be protected and their rights will be protected, and by fundamentally changing our system from 17 years of guaranteed patent protection to uncertain term that starts at 20 years, but may end up after it's issued to be only a few short years, I think that change is not insignificant.

And I will grant you, Mr. Lehman, that you may be very well motivated and really want to improve the amount of time that it takes to get through the Patent Office, and you may be very highly motivated to making sure no one who is operating under your leadership ever sides against an applicant unfairly. But that may not be the case in the future, and if you are successful yourself in bringing down the amount of time it takes to issue a patent, we don't even need the changes that you're advocating because patents will then be issued within 24 months, and at that time everything is published anyway.

So I'm not taking away from any of your motives, Mr. Lehman, but suggesting that even with the best motives you could be advocating changes that in the long run will be very detrimental.

You can come back on that, Mr. Bibbens, if you have a last comment, and then we'll move on, unless Mr. Roemer has any other questions.

Mr. BIBBENS. Just two comments, Mr. Chair. The question Mr. Roemer raised about the biotech, I will just quote from the very articulate comments by Chuck Ludlum, Vice President of Biotech, at the April 25th hearing of the House Small Business Committee regarding patents.

"Bio does not support or oppose any of the bills, but our concern—this is quoting from Mr. Ludlum—"our concern is that the standoff between the sponsors of these bills will kill off all of the bills leaving us with the current law which is quite harmful to biotechnology patents."

That is something that we are also concerned about, and I think he said it very well, and I would endorse that, that we hope that a compromise, a solution can come out that does protect the interests of the small businesses and the small entities. Bio was one of the early proponents of that, and we think that's a very reasonable solution to solve the 20-year/17-year term dilemmas.

We applaud the progress that the Patent Office has made in bringing down the time that it takes to grant. So we think that that can be a resolution. But we are strongly opposed to pre-publication to small businesses. I don't care what the large businesses say about it and I don't care what the patent attorneys say about it, we know from small business that that is going to be devastating and it's going to be devastating to energy and environmental research at federal laboratories where small businesses are involved as a major contributor, and it will certainly impact on our ability to export in the energy and environment field.

Chairman ROHRABACHER. Mr. Bibbens, I want to thank you and Mr. Lehman.

Let me for the record state that I have no desire, and I am the author of 359, which is obvious, and I have no desire to protect any person that could be classified as a "submarine" patentor, someone who is intentionally trying to string out his patent.

My own position is that I don't want to see someone who is diligent and is trying his best to get a patent issued and find that if there are delays, either from incompetency or whatever at the Patent Office—not under your leadership, but perhaps under future leadership—or someone who is a victim of some type of large corporate maneuver against this particular applicant, I don't want to see that diligent applicant have the chance that his property rights will be greatly diminished, meaning that 17-year guarantee would be greatly diminished.

What I'm not trying to protect, and that's why I asked Mr. Lehman about can't we handle this problem, the "submarine" patent at the PTO by changing the actual procedures there to deal with people who are trying to elongate the process, but this Chairman has absolutely no desire to protect people who are intentionally trying to elongate the system. I'm trying to protect those diligent people so that they will have their guaranteed rights that they've had for 134 years in our country. So that's my intention.

I'm sure, as Mr. Lehman says, we are all Americans here and we're trying to do what's best, and we have a disagreement. I appreciate both of you coming today and expressing your opinions and for Mr. Lehman's putting himself in the lion's den.

So thank you very much.

Let's have our next panel.

[The second panel comes forward.]

For our second panel today we have a list of fine witnesses, and I would encourage witnesses to enter into a dialogue with each other as the hearing goes on if they disagree with points that are being made.

First we have Professor James Chandler of The National Intellectual Property Law Institute.

We have Michael Kirk, Executive Director of The American Intellectual Property Law Association.

Diane Gardner, Patent Agent with Molecular Biosystems, Incorporated.

Roger May, Chief Patent Counsel for Ford Motor Company.

William Budinger, Chairman and CEO of Rodel, Incorporated.

And Salvatore Monte, President and CEO of Kenrich Petrochemicals.

I would like to thank all of you for coming today. As I said, I would encourage you to go to the heart of the matter and, if you could, summarize your testimony in five minutes. We'll put your testimony in the record. As I said, feel free to disagree with each other and with the Chairman or with the Ranking Member if you happen to disagree with him, too.

[Laughter.]

So thank you all very much.

Dr. Chandler, thank you very much for joining us today, and if you could proceed.

**STATEMENT OF PROFESSOR JAMES P. CHANDLER, PRESIDENT, THE NATIONAL INTELLECTUAL PROPERTY LAW INSTITUTE**

Mr. CHANDLER. Thank you, Mr. Chairman.

I have only a few remarks to make. Let me simply say that there is no subject in my judgment more important to the American people and the American nation than the topic we're taking up today. In my experience this is a question which should be viewed in a much broader context than what we've so far heard this morning.

The Congress of the United States appropriates $100 billion a year for basic research in the national laboratories in the United States. Each year this Congress appropriates more than an additional $100 billion for indirect research, much of it conducted by American universities.

So on the whole this Congress appropriates over $200 billion a year, and I came here today, Mr. Chairman, to ask why the Congress does this. I mean we've got a budget crisis and we're cutting all kinds of programs in this country. Why does the Congress continue to appropriate hundreds of billions of dollars for research? I think the American people are entitled to know because they pay the bill.

I would submit there is only one reason this Congress appropriates that money. It appropriates it on the premise that somehow this is going to help the American economy, help the American nation, and that cannot happen without an adequate intellectual property system that is rooted in the law of patents.

In my experience I've heard discussions today about what big business thinks about it and what small business thinks about it. Well I'm an American taxpayer and I think that the $200 billion plus that the Congress spends on basic research ought to end. Why do we continue? Why should the taxpayers continue to fund this. Every pay day the staff in the Institute complains about the large portion of their payroll that goes to taxes. They cannot believe it. This to me raises the question of whether or not the United States tax system, or whether or not the United States patent system, ought to mimic the patent system of any other nation.

In the last year of the Bush Administration, we've heard about that Administration, President Bush had created a Commission on Competitiveness. That Commission determined that given the large amount of money we spend on basic research, hundreds of billions of dollars a year, that the United States produces 10 times more intellectual property than any other nation on the globe—10 times more. That means the United States is producing 10 times more than any nation, and there are only what, 10 or 7 or 8 G7 nations. These are the most industrialized nations in the world. That means we are producing more than all of them combined.

If we're producing that much intellectual property and the Congress is appropriating hundreds of billions of dollars it seems to me that the Congress ought to be asking what's happening to the results of that hundreds of billions of dollars. Well I'll tell you what's happening.

According to Secretary Reich, when he was an economist on the Harvard faculty, he said that in the decades of 1959 to '79 the Japanese acquired a trillion dollars worth of that technology out of the

American system and they paid less than $10 billion for it. If you move to an 18-month disclosure system, I would suggest that that number would rise.

When we went to the technology transfer system in 1980 under Stevenson, Weidler and the subsequent technology transfer legislation what did we find? We found that the loss and outflow of technology rose in that decade alone to in excess of a trillion dollars. If the Congress is in the business of financing the basic research needs of the nations around the world, then I think we ought to abolish the patent system.

The suggestion was made earlier today that foreign nations have little interest in our technology. Why then did the Patent Office deliver on CD ROM all of our inventions to the Chinese recently if they have no interest. Why do that?

I heard discussions about first-to-file and the 20-year term. What's the significance of this? You need a first-to-file system if you don't have an equity jurisprudence because you need a mean certain by which you can determine the filing date. The Japanese don't have an equity jurisprudence. The French don't have an equity jurisprudence. The Germans don't have an equity jurisprudence. China doesn't. India doesn't. Why should we imitate them? If we're producing the technology and we have the most advanced legal system on the globe, why should we be in the business of imitating somebody else? If all the world is archaic why should we be archaic?

I think the question is if the Congress is going to appropriate American tax dollars to support the inventions and the government, and if business is going to finance the development of technology at a much more rapid rate than the government does, I believe the question, the real question is how can we best protect those investments? The American people are entitled to have those investments protected.

If you open up the technology resources in the national laboratories, as was done in 1980, the theory of the Congress was that this technology will be transferred out of the national laboratories into American industry. But if you travel to the national laboratories, as I have, you will find that there are more foreign nationals in the laboratory than there are American citizens. You will find that there is more technology being transferred to Japan and China than all of American concerns combined. Why?

The question was raised about American patenting inventions made in the national laboratories, and the fact is that while patenting of those inventions is possible, the funding for patenting those inventions is low. Second, these patents are generally pioneering patents, and the time required to process them is far greater than the improvement patents that we heard about earlier.

The discussion about patent flooding: the fact is that when you invent a pen you've invented penness and you've articulated that pen in one incarnation. If I see your invention of a pen and I now understand the concept of penness and I devote my energies to inventing other types of pens, I can come to the market with a hundred versions of pens and thereby flood you out of the market.

The Japanese Patent Commissioner was in the United States less than six months ago, and in a major speech he gave here in

Washington he said 80 percent of the patents procured by the Japanese are derived from inventions made in the United States.

Chairman ROHRABACHER. What was that again, 8 or 80?

Mr. CHANDLER. Eighty, 80 percent of the patents procured by Japanese, said he, the Patent Commissioner of Japan.

Chairman ROHRABACHER. Mr. Chandler, we're going to have to ask you to summarize because we have other witnesses here.

Mr. CHANDLER. Well I simply think, Mr. Chairman, that these are important questions and there are competing views on both sides. I think there is a legitimate concern with the delay in the system arising from "submarine" patents, and the 18-month disclosure requirement is an approach to doing that, but the needs of universities and research facilities to protect their pioneering patents beyond the 18-month period is a necessity and some compromise should be sought to achieve that end.

As far as the 20-year patent term is concerned, I believe that the 20-year patent term has the potential for having a deleterious effect on a large number of inventions. I think there is good cause to support it for some reasons, but I think the Commissioner has to have and the system has to have the ability to assure a minimum patent term to inventors, and for that reason some flexibility in the requirements of the 20-year term from application is required, and I would support that kind of a resolution of these problems.

Thank you.

Chairman ROHRABACHER. Thank you very much.

Chairman ROHRABACHER. Mr. Kirk.

**STATEMENT OF MICHAEL K. KIRK, EXECUTIVE DIRECTOR, THE AMERICAN INTELLECTUAL PROPERTY LAW ASSOCIATION**

Mr. KIRK. Thank you, Mr. Chairman.

The charter for today's hearing identified three issues for discussion. I'll start with the third issue because I believe it is perhaps the most important of the three.

Will patent law changes under discussion here today help or hurt U.S. efforts to gain a larger share of energy and environmental technology export markets? The answer in my opinion, sir, is very simple. A patent term of 20 years from filing and publication of applications 18 months from filing with provisional rights will help U.S. businesses gain a larger share of foreign markets for energy and environmental technology exports.

By manipulating the date on which patents were issued in the United States, allowing that manipulation, the old law had the effect of increasing the number of cases where the manufacturer in the United States for export to foreign markets was precluded by patents which were still in force in the United States but expired in the rest of the world.

The fact that a domestic company holding a late issuing U.S. patent could export to foreign markets while retaining an exclusive position in the United States might be good for that company, for that patent holder, but bad for the nation. However, when one considers that over 45 percent of all U.S. patents are currently being issued to foreign interests, it is all the more important that patent

terms expire in the United States at approximately the same time that they expire in our major export markets.

The old system allowed those Japanese firms with which we compete so vigorously to compete for the world's markets among themselves while firms located in the United States are sidelined from that competition because they hold patents here in the United States that haven't expired, but they've expired elsewhere. This cannot be permitted to come back.

The second issue raised that I will discuss, which was really the first in the charter, is how will patent law changes affect patents generated by energy and environmental research at federal facilities?

In the current environment of diminishing federal expenditures for research and development, federal laboratories are increasingly looking to cooperative research and development agreements, CRDAs, for co-development and commercialization of new technology. The number of CRDAs has grown from 108 in 1987 to 975 by 1991 according to a 1993 National Science Board report.

Increasingly, ownership of inventions made under such research efforts is left with the private CRDA partner so that one might surmise that the impact of recent legislative changes in these fields will be the same in the energy field as on research generally by private firms. There may be some special reasons why there might be a little bit less productivity in this area, but I won't go into that at this point.

To the extent that private sector firms cooperatively conducting research in the energy and environmental fields at federal facilities do in fact mirror research done in private firms, it can be said that a patent term of 20 years from the earliest effective filing date benefits the public because it encourages patent applicants to cooperate with the USPTO in reducing pendency time. It encourages applicants to promptly present claims they believe are patentable; it discourages the use of successive continuing applications to prolong prosecution and delay the patents; it makes it much more likely that patents will issue promptly and incentivize the early commercialization of new inventions for the benefit of the American public; and it provides the average patentee with a longer period of exclusive rights than under the old patent term of 17 years from grant.

Publication of pending applications 18 months from filing with provisional rights for applicants between the period of publication and grant ensures that firms in the energy and environmental fields will have prompt access to a comprehensive technological database in the English language, especially of foreign technology.

It levels the playing field by doing this between American firms and their foreign competitors who currently see U.S. technology in their languages in their countries at least 12 months earlier than U.S. firms see foreign technologies published here as patent documents in the English language.

It will assist the USPTO in the examination of patent applications by placing before examiners in a timely fashion more of the relevant prior art.

It will enable companies contemplating projects in the environmental or energy fields to obtain more complete and accurate patentability assessments and thereby facilitate their ability to avoid

pursuing a course of action which might later be blocked by another's patent.

And, finally, guarantee inventors in the energy and environmental fields the opportunity to gain at least 18 and one half years of enforceable patent rights which could be extended to 19 and a half years if the applicant wishes. We do not believe that H.R. 359 would protect the interests of firms in these fields as well as H.R. 1733.

Finally, the remaining issue raised is will patent law changes help or hurt future energy and environmental technology development by small entity inventors.

At the outset let me make the point that the vast majority of U.S. patents are not held by independent entrepreneurs or small business people. Fully two thirds are held by U.S. large corporations or foreign large corporations according to information from the USPTO.

However, the one third of U.S. patent recipients who are small entities, if they were all to engage in environmental research and development, they would not be those best able to operate in a world where patent terms were fixed at 17 years from grant. Those best able to continue prosecution endlessly, pursue a needless multiplicity of applications, take serial and inconclusive appeals for the purpose of delay are not small entities, but their large and resourceful competitors, foreign and domestic. H.R. 359 would return the risk to small entities of a patent system where manipulation is condoned. H.R. 1733 would not.

Finally, there has been reference made to the patent agreements in the charter. These patent agreements with Japan were proposed because they were good for the United States. These proposals will strengthen the patent system in the United States, the U.S. patent law. The fact that they were used in these agreements with Japan in effect to get something for our doing what was good for the United States I think is not a criticism.

Thank you, Mr. Chairman.

Chairman ROHRABACHER. Thank you very much, and I'm sure we will have some questions about your declarative statements as the questions and answers go on.

[The prepared statement of Mr. Kirk follows:]

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STATEMENT OF

MICHAEL K. KIRK, EXECUTIVE DIRECTOR

THE AMERICAN INTELLECTUAL PROPERTY
LAW ASSOCIATION

BEFORE THE
SUBCOMMITTEE ON ENERGY AND ENVIRONMENT

OF THE
COMMITTEE ON SCIENCE

UNITED STATES HOUSE OF REPRESENTATIVES

MAY 2, 1996

ON

# CHANGES IN U.S. PATENT LAW AND THEIR IMPLICATIONS FOR ENERGY & ENVIRONMENT RESEARCH AND DEVELOPMENT

*Formerly AMERICAN PATENT LAW ASSOCIATION (APLA)*

Mr. Chairman:

I appreciate the opportunity to appear before the Subcommittee on Energy and Environment of the House Committee on Science on behalf of the American Intellectual Property Law Association (AIPLA) to provide you with our thoughts on the implications for energy and environmental research and development of the recently enacted and currently pending proposed changes in the United States patent law.

The American Intellectual Property Law Association is a more than 10,000 member national bar association whose membership primarily consists of lawyers in private and corporate practice, in government service, and in the academic community. AIPLA represents a wide, diverse spectrum of individuals, companies, and institutions involved directly or indirectly in the practice of patent, trademark, copyright, and unfair competition law, as well as other fields of law affecting intellectual property.

We commend you for conducting this hearing on these topics. The quality of life for Americans in the decades ahead will depend on how well this nation protects its environment and how effectively it conserves its energy resources through the development of more efficient systems for powering its industry, transporting its citizens, and heating and cooling its factories and homes.

## CHANGES AND PROPOSED CHANGES TO U.S. PATENT LAW

The changes on which this hearing focuses were made as part of the legislative package to implement the agreements reached during its Uruguay Round multilateral trade talks. The Agreement on the Trade Related Aspects of Intellectual Property Rights was one of the many

agreements concluded during the Uruguay Round. It obligates member states to adopt a patent term of at least twenty years measured from the filing date. This obligation was implemented by the Uruguay Round Agreements Act (URAA) in 1994, Public Law 103-465. The URAA amended the patent statute to change the previous patent term of seventeen years from date of grant to twenty years from the earliest effective filing date of a patent application. The phrase "earliest effective filing date of a patent application" refers to the filing date of the first application filed where an applicant has filed one or more continuing applications which claim the filing date of that first filed application.

To prevent the loss of patent term from delays in processing beyond the control of the applicant, the URAA provided for five-year extensions in three situations. These were (1) where patent issuance was delayed because the application related to national security and a secrecy order was imposed; (2) where patent issuance was delayed because an applicant became involved in a proceeding to determine whether the applicant or another person was the first inventor and therefore entitled to a patent; and (3) where patent issuance was delayed due to the Patent and Trademark Office wrongfully refusing to grant a patent.

Proposed changes to U.S. patent law on which this hearing also focuses are contained in H.R. 359 and H.R. 1733. H.R. 359 would turn the clock back by providing that the term of a patent would be the longer of seventeen years from patent grant or twenty years from the earliest effective filing date of a patent application. To address situations where a patent is not issued in a timely fashion due to the filing of continuing patent applications, the bill would require that a notice of the original patent application and a continuing patent application be published and the public permitted to inspect the file whenever a continuing application was filed more than sixty

months after the parent application.

H.R. 1733 provides for the publication of pending applications eighteen months from their earliest effective filing date and for provisional rights — the right to obtain a reasonable royalty from any person who practiced the invention during the period from publication to patent grant. H.R. 1733 would not change the twenty-year patent term established by the URAA, but provides certain refinements to essentially guarantee that patent applicants will not lose patent term due to delays in processing beyond their control. It accomplishes this by adding, to the three grounds for patent extension contained in the URAA, a fourth ground to compensate for any "unusual administrative delays by the Patent and Trademark Office." It also provides that the period of extension for all four reasons will be ten years rather than five.

AIPLA believes that the changes from a patent term of seventeen years from grant to a patent term of twenty years from filing strengthened and improved U.S. patent law. We strongly support the additional improvements which H.R. 1733 would make by providing for the publication of pending applications eighteen months after filing with provisional rights for the unauthorized use of the claimed invention between publication and grant. Early publication of patent applications complements the twenty-year patent term and further strengthens U.S. patent law. Together, these changes will act to encourage energy research and development, thereby reducing both the economic costs of energy and the societal costs of pollution. Such research could also produce new sources of renewable energy technology and turn our energy deficit into a surplus. H.R. 359, by reinstituting the old patent term of seventeen years from grant, would reintroduce all of the problems experienced under the old law and would not be in the public interest.

CHANGES HAVE BEEN WIDELY SUPPORTED FOR YEARS

The proposals to amend United States patent law to provide a term of twenty years from the earliest effective filing date and early publication of patent applications can be traced back many years to both Democrat and Republican Administrations. In 1966, President Lyndon Johnson established a President's Commission on the Patent System to consider needed reforms. The Johnson Commission was a blue-ribbon panel co-chaired by Judge Simon H. Rifken and Mr. Harry Huntt Ranson. Following thirteen extensive meetings, lasting a total of thirty-one days over a period of nearly two years, the Commission recommended a number of changes in United States patent law, several of which have since been adopted.

The Johnson Commission recommended adoption of a system of preliminary applications with minimal formal requirements to inexpensively obtain a filing date, an *ex parte* administrative procedure in the Patent and Trademark Office to inexpensively and quickly reexamine issued patents, and an amendment of the law to provide that the unauthorized importation of products made abroad by processes patented in the United States constitutes infringement. United States patent law was subsequently amended to provide for reexamination in 1980, to extend processes to the unauthorized import of products made abroad in 1988, and to provide a quick and simple means to obtain a filing date with provisional applications as part of the URAA in 1994.

The Johnson Commission also recommended that the United States adopt a patent term of twenty years from the earliest effective filing date and that pending patent applications be published eighteen to twenty-four months from the earliest effective filing date. As previously noted, United States patent law was amended to measure a patent term from its filing date as part of the URAA in 1994. Legislation to provide for the publication of pending applications eighteen

months after filing has been introduced in several recent Congresses and has been supported by both the Bush and Clinton Administrations.

In recommending that the term of a patent expire twenty years from its earliest United States filing date, the Johnson Commission noted that measuring patent term from the date of issuance "encourages deliberate delays in the prosecution of applications, particularly those filed primarily for speculative reasons and those having little immediate value." It also noted that measuring the term from grant could encourage the filing of continuing applications "solely to delay the start of a patent term." The Johnson Commission believed that measuring the term from filing would induce applicants to present claims promptly that they believe are patentable and avoid delaying the prosecution of their applications. "Since the term of a patent stemming from a continuing application would expire on the same day as one issued on its parent application, there would be less incentive to use a continuing application for purposes of delay."

The Johnson Commission also recommended that, similar to the changes made to United States law in 1994, the term of a patent whose issuance was delayed by reason of a secrecy order, be extended to compensate for the delay.

In 1990, President Bush's Secretary of Commerce, Robert Mosbacher, established an Advisory Commission on Patent Law Reform. The Commission was chaired by former Commissioner of Patents and Trademarks, Harry F. Manbeck, Jr., and, after his departure, by his successor, acting Assistant Secretary and Commissioner of Patents and Trademarks, Douglas B. Comer. The Advisory Commission held several public hearings on a range of patent law issues. The Advisory Commission recommended that the term of a United States patent be changed from seventeen years from grant to twenty years from the earliest effective filing date of a patent

application, just as the Johnson Commission did. The Advisory Commission also recommended that patent applications be published at a fixed time after filing and that provisional rights be provided after publication to compensate inventors for any unauthorized use of their inventions in the interval between publication and patent grant.

The Mosbacher Commission noted that, while an individual applicant might benefit by virtue of measuring the term of a patent from its date of grant, the public generally is placed at a disadvantage. A patent term measured from date of issuance provides no deterrence for intentionally prolonging prosecution. The report of the Advisory Commission notes that the public benefits most when the patent term is measured from the filing date since this encourages an applicant to cooperate with the Patent and Trademark Office in reducing pendency time. It also avoids the disruption to commerce that occurs when patent rights, appropriate for granting in an earlier era, are granted at some later date. By switching to a system which measures the term of patents from the filing date, the United States can eliminate one potential source of abuse of the patent system; namely, the use of successive continuing applications to prolong prosecution and delay the grant of patents. This reduces the benefits that accrue to the patent owner who chooses to delay, either intentionally or through the use of accepted administrative procedures, the issuance of a patent.

The twenty-year patent term from filing and eighteen-month publication of pending applications have also been long supported by major patent law associations as well as trade associations concerned with high technology patents. The American Intellectual Property Law Association established a Special Committee on Legislative priorities in the 1980's to study the United States patent system with the goal of recommending changes to improve its efficient

operation. The report of that Special Committee contained a number of recommendations which were unanimously approved by the AIPLA Board of Directors in May of 1990. The report included recommendations both on a twenty-year patent term measured from filing and on eighteen-month publication of pending patent applications. In recommending a patent term of twenty years from the earliest effective filing date of a patent application, the Special Committee noted that this would eliminate the extension of the life of a patent because of delays in the Patent and Trademark Office which could result from the intentional filing of an extended series of continuation or continuation-in-part patent applications disclosing the invention. It noted that such delays can also result from the deferred filing of divisional applications.

More recently, the Patent and Trademark Office held public hearings on a number of issues related to harmonizing the laws of the United States with those of our foreign trading partners. Two of the topics on which comments were requested were measuring patent term from the date of filing and publishing patent applications eighteen months after filing. With respect to measuring patent term from the filing date of the application, more than 90% of the people or organizations that provided comments, including representatives of inventor groups and small entity patent applicants, supported the concept. On the question of the early publication of patent applications, three-fourths of the individuals and organizations providing comments supported this concept.

20-YEAR TERM AND 18- MONTH PUBLICATION STRENGTHEN U.S. LAW

It is instructive that Article I, Section 8 of the Constitution provides that the Congress shall have the power "to promote the progress of science and useful arts, by securing for limited

times to authors and inventors the exclusive right to their respective writings and discoveries." The underlying purpose of the Constitutional scheme is the promotion of "progress in science and the useful arts." This progress is best promoted by encouraging disclosure of technology at an early date so that others may avoid duplicative and wasteful research and build upon the work done by others for the benefit of society as a whole.

The publication of pending patent applications eighteen months after they are filed as provided in H.R. 1733 is good for the United States — and particularly for its small entity inventors — for a number of reasons. The publication of pending patent applications is a cost-effective means of ensuring that United States inventors will have prompt access — in the English language — to a comprehensive technological data base similar to that which foreign energy and environmental researchers and businesses in our major trading partners already receive from their regional and national patent offices. All of our major trading partners publish pending applications eighteen months from their earliest effective filing date. Thus, they see American technology filed as patent applications in their languages in their countries eighteen months after it is filed in the United States. On the other hand, American companies do not see foreign technology filed as patent applications here until more than thirty months after it is filed abroad. This is because, under the Paris Convention for the Protection of Industrial Property, applicants can wait up to one year after filing in their country before filing patent applications in other countries and still be given the benefit of the filing date of their first application. Most applicants take advantage of this one year delay. Thus, United States inventors and companies taking advantage of the one year priority provision in the Paris Convention will have their inventions published in other countries eighteen months after their United States filing date or approximately six months after they file

their patent applications in these countries. Their foreign competitors will be able to see this American technology in their own language six months after the application is filed there. By contrast, United States researchers and companies in the energy and environmental fields cannot see applications filed in the United States by their foreign competitors until the patents issue. While a few large U.S. corporations with operations overseas may have the resources to track applications published in Japanese or German, many, if not most, U.S. firms cannot afford to do this. This means that, in many cases, United States companies and inventors — especially small entity inventors — will embark on research projects and make decisions to commercialize technology without having complete information regarding what their competitors — especially their foreign competitors — are seeking to patent.

Early publication will also assist the Patent and Trademark Office in the examination of patent applications by more rapidly, certainly, and completely placing relevant prior art before examiners. Potential conflicts between two or more inventors seeking to obtain a patent on the same invention can be identified at an early date, avoiding situations where later-filed applications issue before earlier-filed applications for the same invention. Small entity inventors will be able to receive more complete and accurate patentability assessments and have a much better opportunity to avoid potential infringement issues since potentially adverse patent rights can be more readily identified and monitored.

By contrast, the publication provisions of H.R. 359 will not serve to protect the interests of America's large or small entity inventors. As previously noted, information regarding a pending application would only be publicized where a continuing application was filed more than sixty months after its parent application. By filing a continuing application just under the sixty-

month limit and engaging in dilatory prosecution tactics such as taking the maximum time to respond to Office actions and seeking exceedingly broad patent claims through the appeal process, a patent application could easily be submerged for ten years or longer. Moreover, an applicant could amend claims during this process to track developments in the commercialization of the technology involved. Finally, even for the majority of applicants who would not pursue such tactics, H.R. 359 simply does not offer the incentives offered by H.R. 1733 for patent applicants to quickly patent and commercialize technology for the benefit of the public.

Eighteen-month publication has been criticized as requiring United States inventors to disclose their trade secrets. This needs to be placed into context. At least 45% of all United States patent applications are of foreign origin and are published in their home countries. Based on statistics published by the World Intellectual Property Organization, it is reasonable to speculate that at least half of the remaining 55% are also filed abroad and are published. A number of the remaining 27-1/2% are disclosed in publications such as technical journals, especially those from universities. Further, based on information from the Patent and Trademark Office, nearly 80% of this remainder should issue as United States patents within three years from initial United States filing. A large number of the remaining inventions will be disclosed through the sale of a product, test marketing, etc. Therefore, only a very small percentage of applications cover inventions, primarily those relating to manufacturing processes, which can be commercially used in secret in one's plant and thus will have any potential value as a trade secret. And for these few inventions, H.R. 1733 contains a provision guaranteeing no publication of applications until three months after a first action on the merits. This allows an applicant to fairly and accurately assess the patentability of an invention prior to making a decision as to whether to allow the

application to be published. Although the provision is currently limited to independent inventors, AIPLA and others have urged the House Judiciary Subcommittee on Courts and Intellectual Property to give all inventors the same opportunity.

Moreover, most applications will have at least two actions by the fifteenth month when a decision to publish or abandon must be made. And finally, for those still concerned about not publishing their inventions unless they receive a patent, there are procedures for working with the Patent and Trademark Office to have their applications handled on an expedited basis.

Like its predecessors, H.R. 1733 provides for provisional rights for applicants whose inventions are practiced between the date of publication and the date of patent grant. With provisional rights, an applicant will be guaranteed the opportunity of receiving enforceable patent rights for a period of at least eighteen and one-half years. This is the combination of a reasonable royalty from publication to grant and full patent rights from grant until the end of the patent term. Where applicants choose to take advantage of the provisional application adopted as part of the URAA, or to request early publication of their applications, this period of enforceable patent rights could exceed nineteen and one-half years.

Both the patent term of twenty years measured from filing and publication of pending patent applications at eighteen months from filing are needed to address one of the most egregious problems that existed under the previous law; namely, submarine patents. Under the previous patent law where the term was measured from date of grant, an applicant could intentionally delay the issuance of a patent for a decade or more through repeated filings which had the effect of keeping their original application "submerged" from public view. At the same time, others (without knowledge of the pending application) could also develop and market the

same new technology. The inventor would then allow his pending application to issue as a patent (the "submarine" surfaces), and proceed to hit unknowing businesses with costly royalty claims. In other cases, intentional delays served to extend the expiration date of a patent, frustrating the marketing of the product by competitors.

Let me mention two examples recently noted by Congresswoman Kelley.

> "US Patent Number 5,339,275, which covers microprocessors, was issued on August 16, 1994. The patent application was originally filed 24 years ago — December 28, 1970, but the issuance of a patent was delayed by repeated re-filings by the inventor. Now, many US companies, which in the interim period developed and marketed products without knowing of the pending patent application, are facing significant costs.
>
> Another example, also in the computer field, deals with US Patents Nos. 5,446,610; 5,422,769; 5,216,557; and 5,424,887. The foreign company that owns these patents delayed their issuance for many years (the first three derive from a single patent application), and now is attempting to assert patent rights over the products of several US companies — and demanding sums worth millions of dollars! Once again, none of the US companies knew of the pending patent applications because the foreign company delayed their issuance through a series of procedural maneuvers. The last patent was issued on June 13, 1995, after multiple re-filings based on an application dated March 5, 1980."

As mentioned earlier, over 45% of all United States patents issuing today are issued to foreign applicants. In the last two years of our old patent law in which patents were granted for seventeen years from the date of grant, approximately three hundred late-expiring patents were issued to foreign companies. Each of these patents will exert control over the use of technology in the United States long after the home-country patents have expired. In some cases, our inventors and companies have taken advantage of the procedures to refile applications and we would note that there has been a significant increase in continuing applications. In just the last seven years, the number of continuation and continuation-in-part applications increased as a percentage of total filings from approximately 19% to 25% — an increase of 30%. This growing

problem was largely solved with the adoption of a patent term measured from filing.

CORRECTING SOME MYTHS

It is reported by the Patent and Trademark Office that the average pendency of patent applications is between nineteen and twenty months. This is the period between the filing of a patent application and the date when either a patent is granted or the applicant abandons his application. Some who oppose the twenty-year term from filing have stated that it takes an average of eight to nine years to process and grant a patent. While the average time to grant a patent will be somewhat longer than the nineteen to twenty months average pendency reported by the Patent and Trademark Office (because the average time to patent grant would exclude abandoned applications which tend to lower the average slightly), it is clear that the average patent will be granted in less than two years.

These results are confirmed by looking at the percentage of patents issued taking into account the earliest effective filing date of the patent application. As explained previously, the earliest effective filing date of a patent application factors in the pendency of all the applications in a chain — the first application plus any continuing application. Even taking into account the situations where applicants file continuing applications, which lengthen the time it takes to issue a patent on a given invention, 79.4% of all patents issued in 1993 were granted within three years of their effective patent filing date. This means that 79.4% would have received a longer patent term under the twenty-year term system and 20.6% a shorter patent term. And this is based on a prosecution practice under the old law where there was no loss of patent term for dilatory

prosecution. With the ability to file provisional applications which do not start the running of the patent term and the extensions for up to ten years for secrecy orders, priority contests, successful appeals, and unusual administrative delays by the Patent and Trademark Office provided by H.R. 1733, it is anticipated that the average pendency will further decrease, and the patent term commensurately increase, under the twenty-year term. It does not take an average of eight to nine years to issue a patent.

AIPLA does sympathize with inventors whose best, diligent efforts to obtain a patent are frustrated by administrative delay, unreasonableness or intransigence. Our data indicates this occurs rarely, but is not unknown. The old seventeen-year patent term after such a delayed grant often provided the inventor no consolation. By the time the patent issued, the market for the patented innovation had often been spoiled by scavengers or the value of the technology would have come and gone. What is needed is not the old, ineffective seventeen-year patent term, but assured, timely issuance. AIPLA is willing to work on innovative proposals to this end.

It has also been stated that the change in the term of a United States patent from seventeen years from grant to twenty years from filing was "slipped into the General Agreement on Tariffs and Trade implementing legislation." Contrary to such statement, the House Subcommittee on Courts and Intellectual Property held a hearing on a "Discussion Draft" of the proposed changes to the patent law in August of 1994 at which several individuals who opposed the changes testified.

Some who have expressed opposition to eighteen-month publication of pending applications have argued that, since they are not filing their applications abroad where they would be published in eighteen months, they should not suffer publication of their applications in the

United States. They argue that early publication of their applications in the United States will enable their foreign competition in Japan, China and elsewhere to copy their technology and put competing products on the market. The point that should be underscored here is that, by foregoing efforts to obtain protection in countries where their applications might be published, their technology falls into the public domain everywhere but the United States when their U.S. patent issues. Patent rights are strictly territorial. Obtaining a United States patent provides an inventor with no protection against the manufacture and sale of the protected invention in any other country in the world. Only patent protection in each country can accomplish that. The focus of our efforts should be to lower the costs of obtaining patent protection abroad so that American small businesses can patent their technology overseas, export products, and grow jobs in the United States.

Finally, it has been stated that there is no evidence of applicants intentionally delaying the process for obtaining a patent; that small businesses and independent inventors need a patent as quickly as possible in order to secure financing for development. AIPLA totally agrees that the prompt examination and issuance of patents is important, not just for small businesses and independent inventors, but also important for the United States. As previously noted, however, the Patent and Trademark Office has special procedures whereby patent applications can be taken out of order and examined more rapidly upon an appropriate request from the applicant. Notwithstanding these procedures, in 1994, less than 2-1/2% of the 200,000 plus patent applications were accompanied by a request for accelerated examination. In our view, the best way to ensure the goal of prompt processing of patent applications is to retain the incentive provided by the twenty year from filing patent term.

CONDEMNATION THROUGH ASSOCIATION

Some who oppose a patent term of twenty years from filing and eighteen-month publication state that "the Clinton Administration has agreed with Japan to mutilate the United States patent system." To the contrary, the proposals to change the United States patent system were made because the Executive Branch was convinced, based on input from a broad spectrum of United States industry and inventors, that these changes were good for the United States. These changes were not proposed or made to appease or accommodate Japan. I can address this allegation because I was an official of the United States Patent and Trademark Office during this time and worked with officials in the Departments of Commerce, Justice, and State and in the Office of the United States Trade Representative on these matters.

Earlier reference was made to the public hearings conducted by the Patent and Trademark Office in the fall of 1993 at which strong support was voiced, both for a patent term of twenty years measured from filing and for publication of pending applications at eighteen months. At approximately the same time, the United States-Japan Framework Negotiations were initiated. The issues raised by the United States were the same as had been raised during earlier meetings of a United States-Japan Working Group on Intellectual Property in 1988 and 1989, and the Structural Impediments Initiative in 1990. These issues included long delays in examining applications in the Japanese Patent Office, the inability to file applications in English and to rely on the English filing to correct any translation errors, pre-grant oppositions, narrow scope of claims, lack of a "grace period" after a disclosure of an invention by the inventor before an application must be filed, protracted court procedures to enforce patents, and narrow interpretation of patent claims by courts. Neither the Working Group negotiations nor the

Structural Impediments Initiative produced any significant commitment to change by the Japanese.

At the same time that the United States-Japan Framework Negotiations were getting under way, the General Accounting Office released a report on its year-long study of the Japanese patent system. The reports contained the results of a survey of approximately 350 large and small United States companies regarding their experiences in obtaining and enforcing patent rights in Japan, the United States and Europe. It confirmed that United States businesses, regardless of their size, experienced significant problems in obtaining timely, effective patent rights in Japan and in enforcing these rights once acquired. The six most sought improvements, based on the response of these 350 United States companies, were as follows:

(1) allow initial filing of Japanese patent applications in English;

(2) speed up the examination process;

(3) apply a doctrine of equivalents;

(4) adopt a twelve-month "grace period";

(5) eliminate pre-grant oppositions; and

(6) reduce the seven-year examination deferral to a three-year examination deferral.

I was the chief negotiator for the United States in the United States-Japan Framework Negotiations on intellectual property. The United States delegation included representation from the Office of the United States Trade Representative, the Department of Commerce, the Department of State, and the Copyright Office. Although there was total agreement within the United States government to move to a patent term of twenty years from filing and eighteen

month publication, we were hesitant to simply propose these changes unilaterally without attempting to use them to obtain improvements in the Japanese patent system. Accordingly, on the basis of the wide-spread support expressed for a twenty-year from filing patent term in the public hearings in the United States, we suggested that we might be willing to recommend such a course of action domestically if the Japanese would agree to allow United States companies to file applications in the English language and use that original filing to correct errors in the translation to Japanese. As noted previously, this was the number one complaint of United States companies filing patent applications in Japan. This was agreed to in principle in December, 1993.

The United States-Japan Framework Negotiations continued in 1994 and a second accord was reached in the summer of 1994. Again, this accord allowed the United States to obtain commitments from Japan in return for agreeing to pursue two changes to U.S. patent law which were good for the United States and had been widely supported for many years — eighteen-month publication and permitting controlled, third-party participation in patent reexamination proceedings. In return, the Japanese agreed to eliminate pre-grant oppositions, to conclude examination of patent applications within thirty-six months of request under certain conditions, and to no longer render decisions ordering dependent patent compulsory licenses. All of the proposals agreed to by Japan had been identified as problems by United States companies doing business in Japan. On the other hand, all of the changes committed to by the United States were changes which it should make in any event because they are good for the United States and strengthen United States patent law. Thus, the charge that the United States agreed with Japan to mutilate the United States patent system is totally without substance.

CONCLUSION

A patent term of twenty years from filing, coupled with publication of patent applications eighteen months from filing with provisional rights, will promote the development of energy saving and environmentally hospitable technology by all inventors — especially small entity inventors. These changes will incentivize the prompt commercialization of these technologies and will reduce duplicative research in areas previously developed by others. This will inevitably lead to an improved quality of life for our citizens through the availability of cheaper sources of clean energy.

These improvements to the patent law will also help U.S. businesses gain a larger share of foreign markets for energy and environmental technology exports by banning late issuing U.S. patents which preclude American firms from competing in countries where patent rights have expired. This is especially critical in view of the increasing percentage of late issuing U.S. patents that were owned by foreign companies, primarily Japanese.

Finally, these changes will be especially helpful in bringing the talents and abilities of America's independent inventors, small businesses and universities to seek solutions to our energy and environmental problems. The small entity inventors are those who can least afford to deal with the uncertainty and manipulation of the old law.

I appreciate the opportunity to appear before the Subcommittee, and I would be pleased to answer any questions you may have.

Chairman ROHRABACHER. Ms. Gardner.

## STATEMENT OF DIANE GARDNER, PATENT AGENT, MOLECULAR BIOSYSTEMS, INC

Ms. GARDNER. Thank you, Mr. Chairman.

I am going to address the pending legislation as it currently stands and give comments and opinions.

I want to point out that I am the patent representative for a small biotech company. As such we're not directly related to energy, but can somewhat be seen to be directly related to environment. However, being that we're a small company, a lot of the trials and tribulations that we face transfer over to small companies regardless of the technology where they're practicing.

So I would like to address, first of all, the way that GATT detrimentally changed the patent term by creating a variable term which is outside of the applicant's control.

The efficiency of the USPTO now determines the length of the patent, and the USPTO estimates of the pendency are misleading. Most of the patents will now have a reduced term. This is especially true for pioneering technology that generally takes longer to examine than the simpler, more well-known types of inventions.

Biotech patents and other pioneering type technology patents take the longest to mature. They also take longer to achieve regulatory approval. This is both true for FDA, which my company is subject to, and for companies that are subject to EPA approval. And I pine for those companies that are subject to both EPA and FDA approval.

[Laughter.]

For these types of patents the value is greater near the end of the patent term. It costs more to bring these types of products to the market, and product price increases will probably be inevitable due to a shortened patent term. So there is an undue burden on these types of technologies in which the U.S. is currently a world leader.

H.R. 359 seeks to restore the patent term by offering a dual term. It gives equal protection to inventors or all types of technologies because the term is not dependent on the length of the patent prosecution. The longevity of the type of technology is not a benefit nor a detriment. It benefits small and nonprofit inventors of undeveloped research.

It allows for solid protection for later editions and improvements to the core technology, and it facilitates the formation of partnerships which were based on that core technology and which are crucial to small businesses. It aids companies in security investment capital because the constant terms allows for evaluation of technology and it promotes investment. It keeps more money in American companies because foreign improvements can be delayed and gives greater incentive to American inventors.

H.R. 359 provides for publication of certain applications. I'm not going to comment at any length on "submarine" patents. Everyone knows the issues involved there. But publication of continuing applications effectively 60 months or older curbs the abuse of the continuation practice. It allows the industry to avoid unwitting infringement, as has been prior alluded to today.

However, I must disagree with Commissioner Lehman's statement that publication says I own this product because that's not quite true. I think what it also says is this is the product I wish to own, start attacking it immediately. Rather than putting other companies on notice so that they can avoid duplication, I believe that it allows a flood of improvement patents or patents that are filed by larger and foreign corporations which are similar simply because they have more resources to do so. And it is my experience that happens routinely and frequently, especially in the area in which I practice.

By publication at 60 months it allows the inventor to make an educated decision on whether to withdraw applications or not. However, the reality is that patent prosecution can and does take more than 12 to 18 months. And regardless of whether or not there are many or few of these patents that publish at that point, it's unfair to those that do end up granting at that point after publication. So therefore it's unfair, and I believe that there needs to be a solid base of equity for all people who are granted patents. Publication at 60 months is cheaper and easier than publishing all applications at 18-months.

H.R. 1733 is contrary to the purpose of the patent system and it hurts small inventors. It automatically relinquishes unpatentable technology, and I believe that fear of publication may drive technology underground as an applicant may try to delay disclosure.

I believe well-financed companies will attack smaller ones with interferences and other types of proceedings simply because they have the resources to beleaguer smaller companies. Again, I speak from experience. This routinely happens to companies such as mine. We are entered into interference proceedings and opposition proceedings abroad simply because larger companies know that we have no resources to go forward. Foreign companies will have earlier opportunity to develop those improvement patents.

Again, I would like to point out that patent flooding is characteristic of the Japanese system. It is my experience that there has been no curb to this type of patenting. The laws to avoid patent flooding in Japan may exist, but I don't believe that they're being enforced. And, contrary to what has been stated earlier, it is our experience that you do need a Japanese partner to bring a product to market in a foreign country such as Japan.

Chairman ROHRABACHER. You mean they weren't telling the truth back in 1974 when I covered that press conference? I'm shocked. I'm absolutely shocked. We had better call Mr. Lehman back here and let him know that.

Could you summarize now.

Ms. GARDNER. Sure. I believe under the current version of 1733 that the Commissioner is granted too much power, that the appeal process should be automatic and that the patent system should protect the inventor. I don't believe there is currently equal protection for inventors. I believe that small inventors under the current 1733 draft must bargain again their foreign rights, and small inventors are given opportunities that are not afforded large inventors. So again there is inequity.

The reasonable royalty claim requirement is practically impossible to meet, and there is no provision against proceedings that create a sort of pre-grant opposition.

To conclude I would like to point out, as I have done previously, that the folks at Bio have spent a long time working on proposed amendments. I believe that they're well thought out, and I believe that they should be given attention.

I don't think that any one current version of either pending bill or the bio amendments is ideal. However, were I to choose something in its current state, I believe that 359 provides more kinds of benefits and more of the needed kinds of benefits for inventors in this country. However, I would urge that everyone work together to create a more ideal system.

Thank you.

Chairman ROHRABACHER. Thank you very much.

[The prepared statement of Ms. Gardner follows:]

May 2, 1996

Testimony of


# Diane L. Gardner

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**Introduction**

I am honored to have the opportunity to address a matter today that is of grave concern to my company, to our industry, and to other industries made up of small businesses and entrepreneurs. I am here as a representative for my employer, Molecular Biosystems, Inc., which is a representative example of the biotech small business community. Companies like Molecular Biosystems play an increasing role in the economy of their home states and of the nation But the biomedical/biotech industry is struggling to survive in our country The United States is currently the worldwide leader in this field. We have the ability to produce the most innovative technologies resulting in the greatest medical advances ever imagined. Yet, our biggest fear is that our companies will not realize the longevity needed to accomplish these achievements. No biotech conference is complete without seminars on patent matters, regulatory issues and investment concerns. These three areas provide more setbacks to the scientific process than anything that occurs in the laboratory. Recent changes to the patent system have created yet additional hurdles for our industry. The uncertain and potentially shortened patent term not only weakens the U S. patent system, but provides further difficulties for companies trying to acquire the essential capital necessary for our operations. It is easy to see that not only the biotech industry suffers. Any industry which relies upon investment capital is at nsk. Furthermore, any industry that is regulated by agencies, including the FDA and EPA, is subject to a reduction of the period of time for which they may operate under their patent protection.

Nothing has had a more profound effect on patent practice than the sweeping changes that were implemented by GATT. These changes have altered the strategies commonly used by patent practitioners throughout their entire careers. The resulting litigation that will result from new legislative ambiguities will surely require decades of case law to untangle

From the time GATT passed, through the day it became effective, patent attorneys and agents worked feverishly to file as many patent applications as possible. For those six months, every workday was lengthened and each weekend was spent at the office. That fateful deadline, June 8, 1995, will remain emblazoned in our memories forever.

Our company, like most others, filed four times as many new patent applications as normally would have been filed in that same time frame. And we were not alone. On June 7, as patent attorneys and agents across the country lined up at post offices just prior to midnight, many wheeling their applications in wagons and carts, there was but one common goal - to get a postmark (filing date) before June 8, 1995. Why did patent practitioners behave in such a widespread, radical manner? What could possibly have created enough fear to make them go to such lengths? The answer is quite simple. NO MORE 17 YEAR TERM.

## H.R. 359

H.R. 359 seeks to accomplish two goals. The first, is the restoration of the fixed, 17 year patent term, measured from the date of grant, that we have traditionally relied upon to keep our patent system strong. This was eliminated by the implementation of GATT, although it was not a requirement of the agreement. The second provision addresses the problem of "submarine patents," which appears to be the primary drawback to the 17 year term.

### Patent Term

For 205 years, the term of a U.S. patent has been a constant, measured from the date of grant of the patent. Under the new GATT provisions, the term is now a variable determined by a number of factors, most of which are outside of the control of the inventor or representing attorney. The new term is measured not from the date of grant, but from the date that the invention was first filed. Therefore, the length of prosecution will be the greatest factor having a direct result on the ultimate term of the patent. As can be appreciated, this factor will depend upon the competency, efficiency and good will of all USPTO employees. Any examination process that takes longer than 3 years will result in a patent term that is shorter than the 17 year term, as would have been granted under the old system. The U.S. patent system was established to promote the arts and sciences by creating a reward, in the form of a patent, as incentive for inventors to disclose their discoveries. In fact, inventors are now punished rather than rewarded for introducing innovations. Under the new system, an increase in the number of patent applications that are filed leads to longer examination delays, and ultimately to shortened patent terms.

Although various measures have been taken at the USPTO to improve the examination process, it remains that each case is treated on an individual basis. While one case may involve a relatively simple process improvement and be examined by an experienced and effective examiner, another case may involve complex, pioneering

technology and be assigned to a novice or less efficient examiner. It is often the most novel and pioneering inventions that require greatly extended examination. In this case, under the new provision, the two resulting patents would have very different terms. The pioneering patent would receive the shorter term! This is not fair. We need a system in which all patent terms are on equal ground.

As a former patent examiner, I am acutely aware of just how arbitrary the examination process can be. At the examination level, it is unclear to the examiner which patents will develop into the next generation's wonder drug, as opposed to those that are merely defensive in nature. A patent covering a remarkable new cure could be subject to a reduction in term simply as the result of, for example, an examiner picking up a different case that seemed easier to work on at the time. Term will also be affected by an examiner simply maintaining his rejection in order to get more information entered into the record before allowance. A delay such as this, which may result in a term shortened only by a few months, could end up costing the company millions of dollars in revenue over that period of time. The possible delays that could be imposed and justified by the USPTO are numerous. Under the new provision, we are subjected to the inconsistencies of the USPTO. This is not the way the ultimate term of a patent should be determined.

The Patent Office has vehemently stated that most patents will enjoy longer terms under the new system. The fact that an avalanche of applications was filed prior to the effective date of the new provisions should lead one to believe that the patent practitioners and inventors have done their own assessment and have reached a different conclusion. If we truly believed that all patent applications could be prosecuted in under 3 years, the race to file applications would have been nonexistent.

The USPTO estimates that the average pendency for applications is about 19 months. Thus, under the new system, the resulting patent would have a term of 18 plus years. Unfortunately, there are flaws in this estimate. First, the estimate is based upon the length of time required for a case to be completed by either an allowance or an abandonment. What is not considered is the fact that most applications require several

such cases to result in any type of patent protection. Several years ago, the USPTO implemented "compact prosecution" in order to speed up the process of examination. Typically, this results in two rejections per case. The initial rejection is made, and after a response from the applicant, the case is allowed or the rejection is made final. At this point, if the rejection was maintained, the applicant has two choices. The first choice is to abandon the application in favor of filing a continuation application in order to continue the examination process. Often, the examiner can be convinced of the worthiness of the invention by these further communications and would have otherwise allowed the original application, if not for the compact prosecution requirements. The other choice is to file an appeal. This is a costly and lengthy process. Needless to say, most practitioners choose the first option several times before resorting to the second. As is readily apparent, the filing of even one continuation application under the new system, using the average that has been provided by the USPTO, results in a patent term that is shorter than the old 17 year term. Often, it takes several such continuations to result in allowed claims

But there is another flaw in this estimate that is even more disturbing That is, biotech patent applications take significantly longer to get through examination than do those in any other field. I have had colleagues tell me they have biotech applications pending for 10 years or more. My company also falls into this category. Other types of applications may be subject to secrecy orders of various lengths before granting. Any newly developing technology will always be subject to longer patent and regulatory review periods, simply because of the unfamiliarity of the technology. Under the new system, the patent term would be greatly decreased as a result of a term measured from the date of filing. Thus, the average patent term under the new system will be significantly shorter for some industries than for others. But biotech products also take the longest amount of time to achieve regulatory approval, and they cost the most to develop. Similarly, all products requiring any regulatory review generally take longer and usually are more expensive to bring to market. Their value increases near the end of the patent, as

opposed to industries where the product is obsolete and abandoned in just few years (ie. the computer industry) Given these factors, these types of industries have just been dealt a fatal blow by the provisions in GATT. It seems unjust that a few particular industries be so adversely affected by the new regulations. More particularly, it is appalling that our government could do this to an industries in which the U S. has a clear advantage over the rest of the world. Regardless of what the averages are, or appear to be, all patents deserve to have equal protection. This can be achieved through provisions which guarantee the term of patents.

The dual term also benefits the small businesses and nonprofit research organizations who lack the capacity to develop their new technologies rapidly. Their patent applications often contain the most embryonic research. When the term of a patent is measured from the grant date, subsequent improvements to the core technology will not be diminished simply because the initial patent was filed several years before. Furthermore, these types of institutions often need to form partnerships with larger companies who will finance their later and most expensive phases of development. This cannot be achieved until the product is partially developed, and patent coverage is secure. Likewise, a shortened patent term will undoubtedly result in higher product prices, as companies try to recoup their investment over a shorter period of time.

Another way in which the dual term benefits companies is that securities markets can more easily assign value to a company's intellectual property. This is especially important in the biotech industry. Over the past few years, investors have turned away from biotech for a number of reasons. For the most part, many were scared off by the inevitable failures that result from any burgeoning, new technology. Others did not realize the delays on their return that would result from the regulatory approval process. For those investors who may still be considering the biotech industry, finding out that there is no way to determine the patent term, but that it will probably be shorter than it used to be, is devastating for investor relations.

An additional way the dual term benefits the U.S. is that Americans are traditionally

credited with pioneering technologies, while foreign companies excel at the improvements thereon It is easy to see that any decrease in length of the initial patent opens the door to earlier foreign improvements. When the patent term is shortened in any way, the bottom line is that there will be less money for American inventors and more money for foreign ones. An American is partially robbed of the benefits that would have been awarded to the inventor of a core technology under the pre-GATT patent system. As a result, there will be less incentive for American inventors to forge ahead and develop the many revolutionary technologies. Eventually, Americans may have to turn to foreign countries for many new products which are currently discovered, developed and supplied by American inventors.

**Publication**

In the United States, patent applications have traditionally been maintained as secret until they grant. This stems from the provision in the Constitution whereby an inventor receives a patent as a reward for disclosing his discoveries to the public. It follows that if, for some reason, a patent could not be allowed, the inventor should have the right to keep information private, rather than make it available for public use. Other countries provide for pre-grant publication of applications. Although patent harmonization remains a hot issue, we should not change our current system merely for the sake of harmonization There are both benefits and detriments to any pre-grant publication provision I have talked to many people regarding this subject, and I conducted my own (very) informal survey. I found that while there is an overwhelming consensus in favor of the patent term restoration, the views regarding publication are very mixed. Many are not in favor of any type of publication. This may be attributed to a basic resistance to any change. Yet, most agree that, should publication be required in order to combat the submarine patent issue, the preferred method would be publication of continuing applications at the 60 month mark, rather than the 18 month mark.

The second provision in H.R. 359 provides for publication of continuing applications

which claim the benefit of parent cases which were filed more than 60 months prior. These applications generally result in three different instances The first involves refiling the original application in order to continue prosecution rather than proceeding to appeal. These are referred to as "continuations." The second occasion results from a USPTO imposed restriction requirement. This requirement divides an original application into two or more distinct inventions. In order to obtain patent coverage on everything that was originally filed, subsequent "divisional" applications must be filed with the pieces of the application that were separated from the original. The last type of continuing application results from improvements or other additions which have been combined with a previously filed applications. These are termed "continuation-in-part" applications.

There have been a few occasions whereby an inventor deliberately filed continuation applications rather than giving the examiner the opportunity to allow his case. This was done in order to allow the particular industry to build up and begin using the invention so that when it granted, it took everyone by surprise. Corporations already using the technology owed the patentee an automatic royalty This late-issuing patent has come to be known as a "submarine."

A few practitioners contend that this is a significant problem within the system. I have worked on both sides of the USPTO and am confident that, although none of us wish to experience the effects of a submarine patent, few people believe it to be a serious obstacle Many have related to me that they have not experienced a submarine patent. Neither have I My company has several applications pending that were filed 10-14 years ago. Many who contacted me related similar stories. I have no personal knowledge of any patent practitioner who would intentionally delay patent prosecution. Practitioners with whom I am acquainted are doing everything possible to get their applications allowed! This is especially true for those companies needing to form strategic alliances with investors This concerns the majority of biotech companies. It is more difficult to arrange funding for technology that is patent pending rather than having a solid patent portfolio with which to bargain.

It is estimated there currently exists approximately 670 pending applications in the USPTO greater than 20 years old. Granting all of them would still represent a small percentage of the 5 million plus patents granted to date. Approximately 35 submarines have actually surfaced. Many of the potential submarine patents have acquired long-term pending status because of government imposed secrecy orders. Still others have been diligently prosecuted during the entire length of time Some applications require a long time to fully examine. Many such applications have foreign counterparts filed and published in other countries. In these cases, it is difficult to believe that they have acquired true submarine status.

However, only a few bad situations can spoil the system. A remedy to this situation would allow for the publication of continuing applications based upon parents filed at least 60 months prior, thus permitting industry to get an indication of the vessel before it surfaces. The potential users of the technology could take various precautions avoiding exposure to infringement. Earlier (18 month) publication of all original applications is detrimental to the inventor. This would cause automatic dedication to the public of any technology not resulting in a patent and would eliminate the practice of the inventor exercising the option to withdraw the applications and maintain their secrecy. Publishing only continuing applications allows the inventor the benefit of some prosecution of the applications, thus indicating to him what obstacles need to be overcome in order to obtain a patent Publication at the 18 month period would not allow the applicant the benefit of an educated decision Although it may happen infrequently, I have filed applications that did not receive a First Office Action until well after 18 months. Publication without that benefit would be unfair to inventors, regardless of how infrequently it may occur.

Of course, early publication following a First Office Action on the merits of the case would be much more fair. In this situation, the USPTO would need to guarantee that the inventor be afforded the opportunity of having a First Office Action well before the publication date. This should apply to all inventors, regardless of the size of the entity.

However, other problems could arise in situations where a second, non-final Office Action is issued after the publication of the application, introducing a new ground of rejection which the inventor did not have the opportunity to previously consider.

The fear of publication without any corresponding benefit may drive a great deal of technology underground. Some inventors may opt to maintain trade secrets rather than file patent applications. Or, since we still operate under a "first to invent system", the applicant may try to somewhat delay filing the application. This would be contrary to the purpose of the patent system. Publishing only continuing applications at the 60 month period would allow the inventor to feel more comfortable knowing that there exists an opportunity for some prosecution and sufficient time to withdraw the application.

Automatic publication of all applications at 18 months would hurt the small inventor the most. It would allow large companies to institute lengthy and costly interference proceedings. Many small inventors would simply lack the resources to fight back. This is a strategy that is routinely used against my company. It would also create publication of technology that may not have been foreign-filed due to the extremely high cost. If the invention was not able to be patented, the inventor would automatically forfeit technology that could have otherwise been maintained as a worldwide trade secret.

Early publication further hurts the American inventor by allowing foreign companies to begin working on improvements to the technology at a much earlier stage. This is most true for technologies with a notoriously long prosecution process, as is the case in the biotechnology arena. Foreign competitors who have access to the information through early publication may have a second generation product developed by the time the patent issues on the core technology. Once again, the American inventor would be harmed by the very system that was originally provided in our Constitution to afford a benefit to him.

The sole inventor is nearly extinct. Even the most innovative mind requires several thousand dollars in order to obtain a patent. Those who opt to save money and try their hand at representing themselves without an agent are usually deeply disappointed by the

result. Often, it results in abandonment or forfeiture of what could have been patentable subject matter. Early publication would provide yet another very useful tool for larger companies, both foreign and domestic, to take advantage of the already limited resources and other weaknesses of the small inventors. Early disclosure would lead to earlier and more numerous attacks by larger companies who prey upon the already beleaguered small entity.

One additional benefit of publishing only continuing applications at the 60 month period is there will be fewer applications requiring publication. Many applications will have either granted or been withdrawn by that time. It also avoids wasteful publication of swiftly examined applications that are due to grant and re-published soon after the 18 month mark. If most patents truly issue in 19 months as the PTO contends, there would be little reason to publish the applications at 18 months. Therefore, it will be less expensive, more fair, and easier to administer publication by the provisions set forth in H.R. 359.

**H.R. 1733**

It should be noted that another bill, H.R. 1733, proposes the early publication of all applications based upon the 18 month time period. Some of the problems associated with early, automatic publication have been noted above. However, there are certain other provisions in the 1733 bill which are additionally detrimental to our patent system

Proposed section 122(b)(1) grants too much power to the Commissioner. There are few areas where no appeal process is allowed. This would create a new one. The Commissioner should not transformed into an autonomous entity. Rather, the patent system should function to protect and serve the inventor, especially in situations where there may be opportunity for abuse of authority or where there could be a question as to the propriety of a decision affecting the rights of the inventor

Proposed section 122(b)(2) appears to authorize delay of publication in cases in which a first rejection has not been issued until 3 months after such rejection. The

applicant is required to certify that the application has not, nor will be foreign filed. This goes against public policy. It is improper for the USPTO to bargain away an inventor's right to file for protection of technology in foreign countries. This is even more problematic in that it is only available for the small inventor. It is difficult to determine if this provision is set up to favor or to discriminate against the small inventor. In either situation, there would no longer be equal protection for all inventors. For this reason, alone, this provision should be rejected.

Proposed section 154(d) should not limit reasonable royalty rates to cases only where the invention claimed in the patent is identical to the invention claimed in the original published application. Patent practitioners agree that those patents claims are virtually non-existent. Almost every response made to a USPTO rejection involves an amendment to the claims. It has been offered that the inventor could send out notice letters each time the claims are amended. That is an excessive burden to place on the inventor. Reasonable royalty must be determined in some other fashion for it to be available at all to the patentee

Finally, if early publication were to exist, there needs to be a commensurate prohibition against public use proceedings. Without such prohibition, there would be a high percentage of public use proceedings filed by well-financed competitors, effectively creating a pre-grant opposition system. USPTO examiners are ill-equipped to deal with such matters, which should be left to validity challenges in the Federal District Courts The U S. has strongly opposed stipulations to initiate a pre-grant opposition practice here. This provision would effectively do that, and should be rejected.

Alternatives to both publication plans should also be considered. One remedy would be to base publication upon the First Office Action response deadline or by administrative means within in the USPTO For example, it would be simple to avoid submarine patents created by divisional applications if all divisionals resulting from a restriction requirement were required to be filed within a given time period, for example one year, from the date of the restriction. The current practice involves filing each

divisional application sequentially, just prior to the grant of the one preceding it. Thus, an original application divided five ways can be prolonged for the cumulative time it takes to prosecute all five of the applications. Continuation applications could also be monitored for substantial prosecution by examiners, who should have discretion to send warnings to those applicants who do not have good and sufficient reason for filing a continuation. Accordingly, it can be seen that there are several ways to remedy the submarine patent problem. All should be considered carefully. While each may be equally effective in curing the problem, the resulting cost and detriment to our American innovators should be afforded great weight.

## BIO PROPOSED AMENDMENTS

The best solution to our current system may not be by any singular proposal. If I had to choose between having some form of patent term restoration or avoiding early publication, I would say that the patent term was more crucial for business viability. One last alternative that should be given attention is the set of proposed amendments from the Biotechnology Industry Organization (BIO). BIO has worked diligently to formulate a set of proposals that would help create an improved system which would result in a beneficial patent term to most applicants. The BIO proposals are well thought-out and have taken many factors into consideration. While some skeptics find it hard to believe that the USPTO could operate under the proposed time constraints, it should be remembered that the very same examining corps operates in a similar fashion to process PCT application search reports and preliminary examination opinions for those applicants who have chosen the USPTO as the designated office for those PCT services.

Although the BIO amendments fail to address some of the other detrimental provisions of H.R. 1733 which I have previously discussed, I believe that their committee has a particular understanding of the processes involved and should be included in any compromise discussions that may result. I would propose that the best result would be

a refined combination of provisions appearing in both of the pending bills and the BIO amendments. Clearly, there are advantages and disadvantages in each. However, a compromise would greatly improve the current system

## CONCLUSION

America's greatest asset is our people's creative genius and entrepreneurial spirit. Our historical lead in innovation is due, in large part, to our strong, rigorously enforced, constitutionally mandated patent system that was designed to reward such drive Strong patent protection encourages businesses to invest in this innovation. Without that protection, many industries cannot justify the enormous amounts of money that are required to develop new products and bring them to market. We must ensure that companies will have the security of a full-length patent term H. R. 359 gives the best of both worlds It assures our inventors that they will have adequate patent protection as a reward for their efforts, and it avoids the "submarining" of patents. Alternatively, the proposed amendments suggested by BIO address additional areas of concern. Should further amendments be out of the question, I would have to pledge support for H.R. 359. However, I truly believe that the best result will require further drafting I sincerely hope that the strength of the American patent system is not compromised by a shortcut decision. I would urge that all of the considerations addressed herein be given careful review and that a comprehensive resolution be determined

Chairman ROHRABACHER. Now we'll hear from the other side, Mr. May.

## STATEMENT OF ROGER MAY, CHIEF PATENT COUNSEL, FORD MOTOR COMPANY

Mr. MAY. Thank you, Mr. Chairman.

My name is Roger May, and I have global responsibility for the intellectual property matters at Ford Motor Company.

I'm here today to voice Ford's support for the changes made in U.S. patent policy through the GATT, changes which we believe provided much needed stability and predictability in our patent system.

As you well know, Ford is an international corporation doing business in more than 200 countries. We have 330,000 employees, 180,000 of whom are in the United States. We are a technology driven company. We have over 17,000 engineers and scientists working in the U.S. alone. Our success in our core business, which is of course automotive, is based to a very great extent on our ability to find and implement new ways to make building and driving our vehicles easier on the world from researching alternative fuels and reducing waste from our plants to using recycled materials in cars and trucks we produce everywhere in the world.

Ford's ability to continue to implement new developments will be enhanced by a stable, predictable patent system. In our view, H.R. 1733 builds on the stability and predictability that the GATT provided, and H.R. 359 just assuredly destroys it.

Ford opposes 359, as you surmised when you introduced me, and any other legislation seeking to return the U.S. to a patent system measuring patent term from date of grant of the patent.

359 creates, we believe, an unstable and unpredictable termination of patent rights arising from a single patent application, similar to what existed before June 8th, 1995. Now this poses a significant business risk to the development and implementation, and I stress implementation of technology which is so important to driving our economy forward. This, of course, will relate to all technologies, including energy and environment related technologies.

The reason why this poses such a great risk is that there is no way at any time to predict whether patent infringement allegations will be brought against newly developed and implemented technologies.

When the patent term is measured from the date the patent is granted, applicants and their attorneys are afforded an opportunity to manipulate and gain the system, so to speak. These manipulations may lead to the issuance of a long chain of patents, one after the other with no apparent end in sight and in fact result in not a 17-year term for someone who files a first application, but many, many years beyond 17 because of the continuous filing of additional applications which mature into additional patents.

A second problem with the 17-year-from-grant approach is that it provides an opportunity for exaggerated delay of a single patent application which ultimately matures into a patent when the patentee decides that it's time to exploit the market.

In fact, Ford has had the recent dubious honor of being involved in litigation regarding "submarine" patents obtained by Mr. Jerome

Lemelson. The core of Ford's dispute with Mr. Lemelson has been the patents which he obtained and contends cover machine vision and all bar code reading applications used in this country.

By way of example, looking at Mr. Lemelson's bar code patents to help explain the type of "submarine" patent we're talking about here, he claims the benefit of a 1954 patent application in terms of priority, and a 1956 patent application, and yet in the field of bar coding, in the series of applications which he filed, many of which matured into patents along the way, the first time that he filed an application directed to what he now contends is his bar code was in 1989.

That was many years after the technology was independently developed by others with no assistance from Mr. Lemelson, many years after it was in use in the United States by Ford and many other companies and individuals and Wal-Marts and everyone you can think of, and a full 35 years after the filing of the first patent application in the chain for which he claimed benefit.

When Mr. Lemelson got his patents he proceeded to sue Ford and others, and he also used those patents to extract hundreds of millions of dollars from those who chose not to fight but rather to roll over when faced with the expense of litigation. Thus, we have an example of a chain of patents that come out.

I think there has been a misapprehension of what "submarine" patents are all about. "Submarine" patents are not just those that are hiding under the surface and come up and shock you. We're talking about a situation where patents may issue in the chain, but the attorneys continue to craft and manipulate the words in the Patent Office overwhelming the examiner with paper to the point where patents issue which are basically covering the same inventions that were covered before thus extending the monopoly for many years, and there is no way to fight this as long as you allow the interminable prosecution of applications in the Patent Office.

Infringement expense arising from litigation expenses is just beyond belief. It's becoming the bane of American industry and it's certainly an unproductive use of corporate resources. It costs Ford hundreds of thousands of dollars just to examine these applications to determine the position to take with respect to them, and then I can tell you many millions more to defend ourselves in court until the judge recently ruled that summary judgment should be granted in Ford's favor and that the patents be held unenforceable for failure to properly prosecute before the U.S. Patent Office.

If H.R. 359 is passed Ford and many other American companies will continue, as well as individuals, small and large businesses and individuals will continue to be injured as a result of unwarranted delay of prosecution of patent applications, an abuse which I believe is invited without question by measuring patent term from the date of grant.

So the patent term must be measured from the date of filing, in our opinion, of the earliest application, and the patent system should not tolerate the failure of an applicant to claim his or her invention within a reasonable period of time.

Chairman ROHRABACHER. Mr. May, if you could summarize. We'll get some questions that will help you out later on.

Mr. MAY. I'm sure.

[Laughter.]

I would just summarize by saying Ford supports H.R. 1733 and point out that it's often missed that 1733 really provides, in our opinion, the longest patent term in the history of our patent system by providing coverage under provisional rights started at 18 months.

I would close by saying that we've referred to the Constitution several times today, and we believe strongly that the Constitution requires a patent system that provides certainty in the scope and term of exclusive rights granted to inventors. Our patent system has to deliver this certainty to maintain stability needed and predictability needed by every institution in America.

Businesses must be capable of assessing the risk of implementing a technology before they invest the substantial amounts of money necessary, and they can't be put in a position where they invest that and then find a patent popping up 35 years after somebody really made the invention.

Thank you.

Chairman ROHRABACHER. You've made your point. Thank you, Mr. May, and we'll get back to a broader discussion a little bit later.

[The prepared statement of Mr. May follows:]

STATEMENT OF

ROGER L. MAY

ASSISTANT GENERAL COUNSEL - INTELLECTUAL PROPERTY

FORD MOTOR COMPANY

before the

SUBCOMMITTEE ON ENERGY AND ENVIRONMENT

of the

COMMITTEE ON SCIENCE

UNITED STATES HOUSE OF REPRESENTATIVES

MAY 2, 1996

on the

# CHANGES IN U.S. PATENT POLICY AND THEIR IMPLICATIONS FOR ENERGY AND ENVIRONMENT RESEARCH AND DEVELOPMENT

27-331 96 – 7

My name is Roger May. I am an Assistant General Counsel at Ford Motor Company and I have worldwide responsibility for Ford's intellectual property matters.

I have come here today to voice Ford's support for changes made in U.S. patent policy through the GATT implementing legislation. Specifically, the patent term changes provided much needed stability and predictability in our patent system.

As you well know, Ford is an international organization conducting business in many countries -- in fact, more than 200. Ford employs more than 330,000 people worldwide, including 180,000 in the United States with manufacturing facilities in 14 different states.

Ford is a technology-driven company employing over 17,000 scientists and engineers in the U.S. alone. Ford's success in its core business - automotive - is based to a very great extent upon our ability to find new ways to make building and driving our vehicles easier on the world around us, from researching alternative fuels and reducing waste from our plants, to using recycled materials in the cars and trucks we produce. In fact, Ford is a leader in the production of alternative fuel vehicles (AFVs), with more different types of AFVs on the road than any other automaker. Together, methanol, ethanol, electric, natural gas and propane offer the potential for reduced tailpipe emissions and increased energy security in the United States.

Ford's ability to continue its success will be enhanced by a stable, predictable patent system. It is our view that any proposed patent legislation must be considered carefully for its affect on the stability and predictability of the U.S. patent system. Legislation such as H.R. 1733 builds on this stability and predictability, while H.R. 359 does not.

H.R. 359 - A BILL TO MODIFY THE TERM OF PATENTS

Ford opposes H.R. 359 and any other legislation seeking to return the U.S. to a patent system having a term measured from the date the patent is granted.

H.R. 359 creates an unstable and unpredictable termination of patent rights arising from a single application, similar to what existed under the law prior to June 8, 1995. This poses a significant business risk to the development and implementation of technology, including that relating to energy and the environment, because there is no way, at any time, to predict whether patent infringement allegations will be made against newly developed or implemented processes and products.

The public interest is served only if certainty and predictability are features of our patent system. When patent term is measured from the date the patent is granted, applicants and their attorneys are afforded an opportunity to manipulate the system. These manipulations may lead to the issuance of a long chain of patents, or exaggerated delay in the ultimate issuance of a single patent, also referred to as submarine patents. These problems are not new. A President's Commission on the Patent System established by President Lyndon Johnson in 1966 observed that measuring patent term from the date of issuance "encourages deliberate delays in the prosecution of applications, particularly those filed primarily for speculative reasons and those having little immediate value." The commission further noted that measuring the patent term from filing would encourage applicants to efficiently prosecute applications.

Under the law prior to June 8, 1995, certain applicants succeeded in obtaining chains of patents strung out over several decades, each having claims "tailored" to capture the prior innovations of others. The filing date of the original application in this chain was then used in an attempt to establish priority against the actual innovator, when in fact, the patentee had never contemplated that which he later claimed. Through this tactic, these applicants attempted to extend their patent grants for many years. Quite simply, the public got nothing new in return for the onslaught of patents which stemmed from this abuse.

In fact, Ford has had to defend itself against "submarine patents", including perhaps the largest "submarine patent" case in history. It is no secret that Ford has been in litigation with Mr. Jerome Lemelson for more than three and a half years. The core of Ford's dispute with Mr.

Lemelson has been his many patents that relate to what he calls "machine vision" and "bar code reading".

Mr. Lemelson has asserted eleven patents against Ford that he says cover "machine vision" and "bar code reading". And these are not the only patents that were asserted against Ford. All of these patents claim the benefit of original applications filed in 1954 and 1956, yet the first of the eleven asserted patents, a patent relating to "machine vision", did not issue until 1982, 28 years after the filing of the first application in the chain! All of the equipment, the use of which is said to infringe these patents, was developed before the patents issued, with no possibility of any benefit or input from Mr. Lemelson.

To highlight the abuse, consider the example of Ford's use of bar code readers and Mr. Lemelson's assertion of his so-called "bar code reading" patents. Ford has been using bar code readers since some time in the mid-1980's. As you might imagine, Ford is not in the business of making bar code reading equipment. We simply buy equipment from vendors and install it in our plants and expect it to work, just the way you buy a computer from someone else and expect it to work. Nevertheless, it is Ford which was sued for supposedly infringing method claims, no doubt because we have a much deeper pocket than our equipment vendors.

Each of Mr. Lemelson's patents claims the 1954 and 1956 filing dates, yet the earliest of the bar code applications was not filed until 1989 -- years after the technology was independently developed by Ford's vendors and 35 years after the filing of the first application in the chain! Not surprisingly, neither Mr. Lemelson's 1954 nor 1956 application, nor any of the subsequent applications in his chain leading to the filing of his 1989 bar code application make any mention of "bar code" - because bar code technology was invented by others. In fact, when Mr. Lemelson attempted to get a patent claim that included the words "bar code", the U.S. patent examiner rejected his attempt. This, of course, did not stop Mr. Lemelson from asserting his patents to extract hundreds of millions of dollars from companies which purchased and used bar code reading equipment legitimately developed by others with no contribution from Mr. Lemelson.

So, here you have a concrete example of how submarine patents work:

- an original application filed in 1954,
- a technology independently developed by others with no benefit from the applicant,
- applications kept alive for decades while the applicant watches an industry develop, and
- patent claims introduced for the first time in 1989 - thirty-five years after the alleged priority date -- which are tailored to attempt to cover bar code reading.

Infringement litigation expense arising from this type of convoluted patent chain is the bane of American industry, an unproductive use of corporate resources. Patent infringement defense bills in the millions are common. It cost Ford hundreds of thousands of dollars just to sort through these "submarine patents" and evaluate their infirmities and then millions more in litigation costs. While this was happening we witnessed many other targets simply pay what was demanded rather than resist.

The havoc this abuse can wreak on an entire field of technology is best summarized by a statement in Magistrate Judge Atkins' recommendation, which has been adopted by Federal District Judge George in granting Ford's motion for summary judgment. "In essence, Lemelson's continuing application practice imposes prejudice upon all manufacturers or users of related products because all technological advancement arguably related to his 1954 and 1956 applications must cease indefinitely, or until Lemelson himself ends the chain of copending applications." (Emphasis added. Magistrate Judge's recommendation, page 38.) If H.R. 359 is passed, Ford and many other American corporations will continue to be injured as a result of such unwarranted delay in the prosecution of patent applications, an abuse invited by measuring patent term from date of grant.

Patent term must be measured from the date of filing the earliest application to assure that pendency is finite and that no one will abuse the system. The patent system should not tolerate the failure of the applicant to claim his invention within a reasonable period of time. There is simply no justification for allowing an applicant to continue changing the language of his or her claims indefinitely. The public has a right to know what the applicant considers to be his or her

invention. Otherwise, anyone trying to do business will be left to either litigate or cave-in when threatened by patents issued years after the commercial development of the technology.

Such uncertainty of patent rights was cured by the GATT implementing legislation. Reinstating a system which will once again motivate patent owners to engage in these abusive patent practices would seriously impair the integrity of the U.S. patent system.

The sponsors of H.R. 359 argue that such abuses will be remedied by the publication of any application pending for more than 5 years. Unfortunately, the problem is not simply the secrecy of the application process. Consider the following statement, made by Gerald Hosier (Lemelson's attorney), during licensing negotiations:

> I pointed out that Mr. Lemelson currently has more than one hundred fifty issued and unexpired patents and more than fifty pending applications and that patents are being filed and issued at the rate of ten to fifteen per year. The claims of the pending applications are all being carefully drawn to cover practices in widespread commercial use. In this regard, we anticipate that more than one hundred fifty claims covering commercial bar coding practices will issue by mid-1992 with an effective 1956 filing date based on the disclosure of the Lemelson CIA patents. (Emphasis in original. Magistrate's recommendation, page 34)

Publication of the 1956 patent application would never have prepared anyone for the patent onslaught that occurred 36 years later. No form of publication could adequately forewarn the public as long as applicants are encouraged to tailor their claims after observing the developments of others over the years.

Ford has listened to the concerns expressed about the possible ill effects of the GATT implementing legislation. In fact, Ford, along with other industry representatives, has met with proponents of H.R. 359 to discuss these concerns. While we are firmly opposed to any solution that involves measuring patent term from grant, H.R. 1733 includes provisions directed at addressing the concerns raised by the supporters of H.R. 359.

H.R. 1733 - PATENT APPLICATION PUBLICATION ACT OF 1995

Ford supports H.R. 1733 because this bill wisely leaves untouched the patent term provisions of the present law as amended by the GATT implementing legislation, because it provides for 18 month publication of patent applications which assures the timely flow of energy and environmental technology necessary to keep America competitive with the rest of the world, and because it creates provisional rights which assure inventors the longest patent protection available in U.S. history.

Advancement of energy and environmental technologies is promoted by publication of patent applications at 18 months because scientists and engineers are given timely insight into advances in technology, thus allowing them to quickly assess the state of the art in these fields. Early publication not only reduces wasteful duplication of research and development relating to preexisting technology, but also encourages improvements at a more rapid pace. And, early publication reduces costly patent litigation by allowing potential patent conflicts to be identified earlier, permitting licensing and/or design changes which often lead to further improvements. It is not surprising that almost all major patent systems other than ours provide for early publication.

Viewed another way, the publication provision of H.R. 1733 is a necessary step toward patent harmonization, which will benefit all American inventors. Harmonization will provide all American innovators with significantly more comprehensive global patent coverage for their dollar.

Some are concerned that publication of pending applications will allow competitors to rush in and capture a new market. However, if competitors do this in the face of a dominant patent, not only would the inventor be able to stop the infringing activity upon issuance of the patent; but also, with provisional rights, he or she would be able to recover reasonable royalties beginning with the date of publication.

Many supporters of H.R. 359 are concerned about the possibility of an applicant receiving less than a 17 year patent term. To address this concern H.R. 1733 expands the patent term extensions provided under the GATT implementing legislation, so that all applicants who diligently pursue patent protection will receive at least a 17 year term and most will receive more. This has been accomplished by increasing the term extension cap from 5 years to 10 years and by adding a provision aimed at assuring that applicants will not lose term if applications are delayed in prosecution for reasons beyond the control of the applicant.

H.R. 1733 further provides provisional rights to applicants who are successful in obtaining a patent. Under this provision, a patent holder may collect reasonable royalties for infringement occurring between the 18 month publication and the actual grant of the patent. Taken as a package, H.R. 1733 will provide U.S. inventors with more patent protection than ever before in the history of U.S. patent law.

CLOSING

We believe that Article I, section 8 of the Constitution requires a patent system that provides certainty in the scope and term of exclusive rights granted to inventors. Our patent system must deliver this certainty to maintain the stability and predictability needed by American enterprise of every stripe. Businesses must be capable of assessing the risks of commercially implementing new energy efficient and environmentally friendly technologies. H.R. 1733 maintains this stability and predictability while providing a forward step in the development of the U.S. patent system as an integral part of the international patent community. In contrast, H.R. 359 seeks to return us to a system subject to abuse driven by greed -- a system which is in fact hostile to those seeking to market new energy efficient and environmentally friendly technologies. Let us not take this backward step. Thank you.

Chairman ROHRABACHER. Mr. Budinger.

**STATEMENT OF WILLIAM D. BUDINGER, CHAIRMAN AND CEO, RODEL, INC**

Mr. BUDINGER. Thank you, Mr. Chairman.

I appreciate the opportunity to be here today, and I'm surprised and delighted to find that I agree with more of the panelists than I expected to agree with.

I would also say that you and I, Mr. Chairman, are really on the same side of this issue. We just have some minor differences in how we think we ought to go about achieving those objectives.

In the interests of time let me not read my prepared testimony and instead hit a couple of highlights. I would like to comment on two questions that you raised earlier to the Commissioner that I thought were very good questions.

The first one was, if I wrote it down right, if we publish at 18 months what will keep the Chinese from copying the invention, and I think it's a very good question. The answer I think is they actually have that same opportunity right now in this sense. They can copy a patent that publishes. In other words, if I get my patent in 20 months, the average time, they can copy that with impunity, and there is nothing I can do about that, just as they could copy my application if it were published.

I can only stop them, and this is hopefully maybe some day, I can only stop them from copying it in China if I have a Chinese patent. The problem is today if I apply for a Chinese patent, and I do, I'm a small business guy, or at least I was until a couple of months ago. We've been successful. So we've now graduated from that category. But I have 25 years of experience at being a small business guy and fighting in an industry, electronics, where patent protection is absolutely critical, and all of my competitors, or almost all of my competitors, are giant foreign corporations, and frankly they scare the bejesus out of me, and I really need good worldwide global protection, because being in the electronics industry, it's a global thing and you can't just do it in the United States.

Companies like Intel, for example, is a customer of ours. They insist that they get the same product from us in all of their plants all over the world because they're trying to make the same product. So we don't have the option of just doing it in the United States. If we are not willing to do it everywhere in the world we can't make a sale even in the U.S., at least in our market.

So back to these Chinese who are copying our inventions. I will get a patent in China. The trouble is when I apply for that patent in China, the way that works is I apply for it in the United States first, and then within a year I've got to apply for it in China, or Japan and Germany and all these other places where it matters. They will publish my application 18 months after what they call my effective filing date, which is the date I filed it in the U.S. So I'll wait until the last minute to file it in Japan or China, and it will be a year after I file it in the U.S. They will publish it six months later because that's the 18-month time.

So my Chinese competitors and my Japanese competitors and my Korean competitors can all presently read everything I'm doing in their own language. So from that standpoint your question was a

good one. What keeps them? Nothing keeps them from copying it unless I get a patent in China, and that's a pretty iffy proposition in the first place.

But even if I get a patent in China, the processing of applying for it gives them all of the opportunities to read a published application that they would have if they were published in the United States.

Now what I would like to have is I would like to know what all those Chinese and Japanese patents in my industry are. They can read mine, but right now I can't read theirs unless I read Chinese and Japanese and Korean, or get all that stuff translated. It would be wonderful if the U.S. Government translated all those things for us, but it doesn't happen. I have to go out and pay to have all those things translated, and that's the only way I can find out.

My patents are published in Japan at 18 months. Their patents are not published here, and I would just kind of like to have a level playing field.

Now, by the way, I support and I agree with the fact that independent inventors, guys like I was back at the very beginning, have a real problem and are very concerned about, "gee, what happens if we publish our application, and we're not publishing abroad or any of that kind of stuff. So it doesn't affect us." And I totally support a provision that makes sure that those applications for the small guys that don't publish abroad don't get published here either until some period of time elapses or they know that patentability is assured or whatever. So I agree in that category.

I want to see publication because only 20 percent of American patents are issued to American small business and independent inventors, guys like me. We only get 20 percent. Eighty percent of American patents go to guys like my friend over here from Ford or the big companies or foreign companies. It has been said that foreign companies get almost half of U.S. patents.

I would like to see those. They're my big competitors, and I will get a competitive advantage or at least some competitive assistance as a little guy because I worry about where I'm going to spend my money. I don't have all that much to spend, and I worry about spending it in areas where somebody else has already got patent stuff underway. Right now I have to go to Japan to find that out, and I would like to be able to find that out here, and it's those 80 percent that I would like to see published.

Thank you.

Chairman ROHRABACHER. Mr. Budinger, thank you very much. I think you came up with a very good idea for a compromise that I hope is included into 1733 in terms of if someone doesn't apply overseas they don't have to be published. I hope that that's included, and if it's not I hope that you will support 359.

Mr. BUDINGER. Could I make just one brief mention about term?

Chairman ROHRABACHER. Sure, go ahead.

Mr. BUDINGER. I am concerned about term, and I also believe that the present 20-year term needs some amendments. It needs to be fixed. But I would like to see us stay with the 20-year term. I would hate to see us leave and go back to the 17-year term. I've been intrigued because we've used the word "variable term," and some people use it to refer to the 20-year system as being a vari-

able term, and some people use variable to refer to the 17-year system.

I've heard people say there is no such thing as "submarine" patents, and to borrow a phrase from earlier, I think the folks that say that are either naive or disingenuous. Here is a list of 300 patents that were issued in the two-year period before the law changed. Each of these patents will monopolize a segment of American technology for 25 years or more. Now they're all issued under the 17-year term, but they're going to provide a minimum of 25-year monopolies, and some of the monopolies here are 40 years, and this is a two-year period. Every one of these 300 patents is issued and owned by a foreign corporation. So these folks learned how to game our system. They learned how to game that 17-year term thing.

Our experience with foreign business is that they catch on quickly. They know how to copy us quickly. There is a lot of gold and pay dirt in here. I wanted to read this, but I'll set it aside and make it available to you afterwards.

This is a list of key patents in major U.S. industries, the computer industry, the disk drive industry, semiconductor, photoelectrics, disease treatment, cancer treatment where foreign companies have monopolized American technology and prevented American advancement and prevented entrepreneurs from entering these fields, for in some cases generations, after the patents have expired in their own country. Now this process has been stopped with a 20-year term. We need to fix the 20-year term, but we don't want to reopen this process.

Thank you.

[The prepared statement of Mr. Budinger follows:]

TESTIMONY of
WILLIAM D. BUDINGER, CHAIRMAN & C.E.O.
RODEL, INC., NEWARK, DE,
DELEGATE AND REGIONAL TECHNOLOGY CHAIR
TO THE WHITE HOUSE CONFERENCE ON SMALL BUSINESS

ON

# CHANGES in the U.S. PATENT LAW and THEIR IMPLICATIONS for ENERGY and ENVIRONMENTAL RESEARCH and DEVELOPMENT

BEFORE THE

HOUSE SUBCOMMITTEE on ENERGY and ENVIRONMENT
of the COMMITTEE on SCIENCE

May 2, 1996, 10:00 A.M.

May 1, 1996

Mr. Chairman and members of the committee:

My name is Bill Budinger. I appreciate the opportunity to appear here today to present a small business perspective on the effect of proposed patent law changes.

I am an inventor, holder of 3 dozen patents, and founder of a company that until a few months ago was a small business. I understand that the question before this committee today concerns the effect that various proposed changes to U.S. patent law might have on research and development.

In our case and in the case of most businesses like us, the proposed changes will have little or no immediate effect on our Research and Development. Frankly, the change to 20-year term or bills like H.R.1733 and H.R.359 -- whether they are passed or not -- will have little *direct* effect on our R&D. If patents were to last 100 years or only 5 years, it would make little difference on how we direct our R&D strategy. The reason is that our R&D is driven by market opportunities, competitive threats, and cost -- not the term of patent protection. A competitor who leapfrogs one of our products will drive us to invent a countermeasure. Discovery of market need will invite us to invent a profitable solution. Our R&D is, as we believe it should be for any successful small company, market driven.

What the proposed changes *will* affect is the health, vitality and global competitiveness of American small business. For that reason, the proposed changes could have a very significant *long term* effect on R&D. The reason has to do with the special importance of patents to small business. My company is a case in point. We manufacture products that are used by the electronics industry to make semiconductors. Because the electronics industry is global, most of the market opportunities for my company are foreign. Unfortunately, most of our competitors are also foreign -- and much larger than our small firm. The only hope we have of selling our American-made products in that market is if our technology is significantly ahead of our competitor's. The only defense we have to keep our technology from being copied is the protection afforded by our patents. If that protection is too difficult to get, too expensive, or too vulnerable in court against deep pocket competitors, I and my small business colleagues

will not be able to compete. Indeed, for small business, patents are often our only protection against large well-funded predators. That is why headlines like "America's patent system is under attack" generate such passionate response from small business. That is why I am so concerned about patent law.

In that context, I would like to comment on some of the proposed changes to our patent law and their effect on the vitality of American small business. Rather than comment on specific bills, I will talk about the particular issues that are important to small business.

GLOBALIZATION

I was born before WWII. For most of my lifetime, the American economy dominated the rest of the world. The American market was the only market that mattered; American competitors were the only competitors to fear. We could make our laws without regard to the outside world. For better or worse, that is no longer true. The factories left in ashes by WWII have been rebuilt. We have global competitors that make genuinely good products. Trade between nations is now almost as easy as trade between the states. Fifteen years ago it took me several days to get product to a customer in Texas; today I can get product to a customer in Taiwan in a few hours. Fifteen years ago I was pretty well insulated from competitors in Korea (if there were any); today they are calling on my American customers offering next day delivery. For small technology businesses, those of us who use the patent system, to ignore global competitors is to invite failure; to ignore global markets is to miss great opportunities. Indeed, the White House Conference on Small Business last year reversed its earlier isolationism and voted overwhelmingly on the importance of international trade to the future of American small business.

Just as our founding fathers realized the importance of a uniform law governing trade between the states, we now need that same uniformity of law for trade between nations. The American patent law that served us so well for 200 years now must ensure that not only are we incenting invention, but also that it does not harm our global competitiveness. **Therefore, as we consider these various bills, it is imperative that we take into account their effect on international trade and our global competitiveness. The last thing we want to do is have American patent law put American companies at a global disadvantage.**

Both of the topics that follow have serious implications for the global competitiveness of American small business.

PUBLICATION OF APPLICATIONS.

At first glance, it might seem crazy to publish applications before they issue as patents. Publication might allow anybody to read and copy the invention before there is any patent protection. Publication might also enable competitors to bombard the Patent Office with prior art and thus "stall" an application interminably. Publication could also destroy the opportunity to keep the invention a secret should it prove to be not patentable.

*But there are also very good arguments for publication.*

First, publication protects inventors from wasting effort, time and money on technology being claimed by others. **Nothing is more heartbreaking than to see a small inventor sink a lifetime of savings into building a business around his or her invention only to discover later that somebody else filed an earlier patent.** I cannot count the number of times I have thought up a new invention only to discover later that my "new" idea was old. Yet unless the "new" idea is old enough that patents have already issued to other people, how can one know if it is safe to proceed? Unless an American inventor goes to the expense of searching foreign patent offices, there is presently has no way of knowing what new technologies are in the process of acquiring U.S. patent protection. Indeed, if we restore the 17-year term, applications may be kept secret in the Patent Office for a very long time. An inventor could be far down the road towards building a successful business before he discovers that another's long-pending patent will take away everything he had built.

Second, there is a popular belief that American patent applications are presently secret until the patent issues. That is not true. **Most American patent applications are secret only in America.** The vast majority of all American applications -- and especially the important ones -- are now being published *overseas* 18 months after their filing date. This is because 45% of U.S. applications are filed by foreign companies as a counterpart to the application they file in their home country. Another 30% are filed by multinational companies who rarely file important patents only in the U.S. Many additional U.S. patent applications, filed by small businesses like mine, are also filed abroad. All of these U.S. applications filed abroad are "laid open" or published in those

foreign countries 18 months after the filing date. As a result, America's foreign competitors presently have a powerful advantage in information about pending American patents. **The important patents pending *in America* are known overseas but hidden to small American businesses.** Clearly, small business would benefit if it could, without compromising its own patents, learn what technology has already been staked out by pending patents.

**Fortunately, there are some proposed solutions that would give us the best of both worlds.** Publication of U.S. applications 18 months from their priority date would coincide with the time that U.S. applications are now being published abroad. To address the other concerns, several modifications are required. Since others have explained these modifications in detail, I will only summarize them here.

1. **Secrecy** - Applicants who do not file abroad are the primary constituency at risk. Any publication bill should allow applicants (and I favor limiting this exemption to small entities) who file only in the U.S. to prevent the publication of their application for some period of time or until after patentability has been determined. Before that time, or if the application is determined to be *not* patentable, **the applicant can withdraw the application with no publication and no disclosure of the secret.**

2. **Copying** - The risk here is probably more theoretical than real. In the 20-year system, by the time a potential competitor could read a published application and begin manufacturing, the patent would most likely have issued. Further, a competitor undeterred by a patent about to issue is not likely to be deterred by an issued patent. Then too, there is always the "petition to make special" procedure for accelerating examination. In any case, what risk there is could be mitigated by **allowing the successful patentee to collect royalties back to the date of publication.**

3. **Pre-grant Opposition** - Our present system already has the potential for pre-grant opposition. Since the majority of U.S. applications are already being published overseas, the opportunity to bombard the PTO exists today. **The publication bill should contain a provision forbidding pre-grant opposition and perhaps even forbidding consideration of *any* third party submissions.**

If these compromises can be made part of a publication bill, then small business can have the best of all possible worlds. We will be able to determine what areas of technology are open for exploitation. We will be able to see what only our foreign competitors can now see. We will be able to read in English what is often now only available in other languages. Best of all, after our application is 18 months old, we can

proceed and seek investors with the confidence that there are no earlier patentees who could upset our applecart -- and, if we don't file abroad, the confidentiality of our own invention remains protected.

PATENT TERM

To some people, the old system of setting a patent to expire 17 years after the date of grant seemed like a good idea that should not have been changed. But things are not what they seem. **Every administration since Eisenhower has recommended abandoning the grant-based 17-year system.** There are many reasons, but two stand out. (I'll use "17-year system" to mean any system allowing the expiration date to be measured from the date of grant, and "20-year system" to mean any system which sets the expiration date from the date of filing.)

The primary problem with the 17-year system is its effect on patent expiration dates. Under the 20-year system, the patent expires 20 years from the filing date regardless of the grant date. There is no way an applicant can extend out the expiration date. Under the 17-year system, however, the applicant can control the expiration date by speeding up or delaying the date of grant. And **when the expiration date can be pushed out by delaying the date of grant, there is strong incentive for many applicants to invoke strategies that delay grant.** Too often, delaying grant simply makes good commercial sense. The later a patent expires, the longer the effective monopoly. I'd like to see my own patents last forever - or at least as long as I live. But late expiring patents are not good for America. Patents confer monopolistic rights, and monopolies -- even patent monopolies -- are bad for business and bad for consumers. Although patents incent invention, once issued, patents freeze technology. Also, if my patents could last forever, then so could the patents of my competitors. And taken together, my competitors have many more patents than I do. Consider this: many of the technologies now in the public domain -- the technologies we learned in our engineering books, the technologies that are the basis for routine production -- were once tied up by patents. If those patents were still valid and enforceable in America, technology would be frozen and no small business would be able to compete. Patents must expire in a timely manner.

Another problem with the 17-year system is its effect on our international competitiveness. Under the 17-year system, there is no incentive for either the

applicant or the Patent Office to expeditiously process applications. On the contrary, as we have heard in previous hearings and from countless companies, **a return to the 17-year term will allow, indeed *encourage*, the use of delaying tactics in order to extend expiration dates. If some are allowed to do it, then we must all do it to keep our competitors from gaining an advantage.** However, the rest of the world has moved to a system where patents expire 20 years from filing. Therefore, if the U.S. reverses course and reinstates the 17-year system, some patents will remain valid in the U.S. long after they have expired elsewhere. That means technology will be frozen in the U.S. long after it is open to competition and progress elsewhere. As an example, attached is a letter explaining how extended patents have prevented new entrepreneurs from entering the postage meter business in the United States. Because the 17-year system was in effect at the time, the company who owns the patent is able to monopolize the field for 30 years. A second example is the patent for the powerful anti-cancer drug Tamoxifen.[8] This patent was applied for by a British pharmaceutical company in 1965. The patent expired in Britain and almost everywhere else about 1985. Women all over the world are now able to get inexpensive drug therapy for breast cancer -- except in the United States. In the U.S., because the 17-year system was in effect at the time, the American version of that patent will not expire until the year 2002 -- a 37 year monopoly. **In other words, under the 20-year system, each company would have been able to keep its monopoly for only 20 years. Under the 17-year system, the monopolies will last for 30 years or more.**

Let me speak first hand about what will surely happen if the U.S. returns to the 17-year system. I and most other inventors that I know will be forced by competitive pressures to use the patent system to try to obtain for ourselves as long a monopoly as possible. Under a restored 17-year system, we will combine inventions, delay, confuse, wait until the last minute, refile -- we'll use every technique in the book to postpone the date of grant and thus postpone the expiration of our patents. It won't be "bad" people who do those things, it will be people like us who are just making good business decisions -- forced by competitive pressures and responding to the incentives inherent in the 17-year system. And since these stalling techniques require creative lawyers and expensive manuevers, large companies will have an advantage over smaller firms. And since so many U.S. patents are owned by large foreign corporations, they will have a special advantage. Clearly America would not benefit from returning to a system that permits, even encourages, such long extended monopolies.

On the other hand, a straight 20-year system is not without its problems. Many have been concerned that our new 20-year system does not take adequate measures to protect diligent applicants from delays and problems that are not the applicant's fault. Ideally, under the 20-year system, all examinations are completed in less than three years and no patentee ends up with less than a 17-year term. But that does not always happen. The PTO may drag its feet during examination. There may be the need for appeals. Applications sometimes even get lost. The PTO needs an incentive to act expeditiously and applicants deserve a remedy when the incentive fails. Although restoring the 17-year system might solve the applicant's problem, it would do so at great expense to the American consumer and great harm to American business. **Fortunately, there is a remedy which achieves the same effect for diligent applicants without bringing back all the problems of the 17-year system.**

In those cases where the patent has taken longer than three years to issue through no fault of the applicant, extra term can be added automatically. There have been a number of mechanisms proposed for this remedy. I like those that give the Patent Office a specified time limit within which to act or process an application. Every day of additional time taken by the Patent Office is automatically added to the patent's term. Because the term extension is automatic, there is no requirement for action on the part of the applicant and no requirement for judgement on the part of the Patent Office. Furthermore, because delay by the PTO shows up on the face of the patent as a term extension due to PTO delay, there is tremendous incentive for the PTO to avoid such delays (under the 17-year system there is no clear indication of who is at fault). Such a modified 20-year system elegantly solves a number of problems:

* It keeps the 20-year "international standard"
* It gives applicants a dis-incentive to delay or obfuscate examination
* It gives the PTO incentive to process applications quickly
* It extends term for applicants when the PTO does not act expeditiously
* It strengthens patents by removing the basis for a "deliberate delay" challenge.
* It ensures every diligent applicant at least 17 years of term.

## THE SPECIAL PROBLEMS OF SMALL BUSINESS

The 1960s, '70s, and '80s saw a steady decline in American industry's global competitiveness. In market after market, American products were replaced by products

from Germany, Japan and Korea. In the '90s, the trend reversed. American ingenuity reasserted itself in the form of a new breed of enterprise. Companies that were small businesses just a decade or two ago arose and recaptured the lead for America in global technology. They have names like AMD, Applied Materials, Compaq, Intel, and Micron. For this new breed of company, intellectual property protection is vital. **It is significant that these bright new companies have studied the issue and universally concluded that America should publish applications and *not* reinstate the 17-year system.**

Small business, on the other hand, does not have the resources or time to become expert on patent law. Unfortunately, the viewpoints of many small businesses have been distorted by a recent flood of mis-information directed toward small businesses and inventors. My own company has been the recipient of at least three phone calls by organizations claiming to represent the interests of small business and asking us to insist that Congress oppose publication and reinstate the 17-year term. The problem with these calls has been that the "facts" that they used to make their case were terribly terribly wrong. For example, they claim that the average patent takes 8 years to issue when in truth it is closer to two years. They claim that independent entrepreneurs and small businesses account for the vast majority of U.S. patents when the truth is that the largest single group holding U.S. patents is foreign entities -- American independents and small entities combined hold barely one fifth of U.S. patents. They claim that U.S. applications are presently secret when the truth is that most are not. They claim that big business is out to destroy the patent system when the truth is that a strong patent system is critical to our most successful businesses. This mis-information has understandably created a passionate reaction. It has also made the debate over these issues far less rational and more rancorous than it should have been. To quote Ludlam, **bad facts make bad law**. Parties have dug in behind "my way or no way" positions and refused to consider that others also have valid concerns that need to be addressed. **The issue is crying out for leadership, not advocacy**. All of us would benefit if good compromises could be enacted -- especially small business. Time is running short. It is my hope, Mr. Chairman, that this hearing will begin the search for compromise and "win-win" solutions.

Thank you.

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November 29, 1995

JOHN E. McGARRY

DIRECT DIAL 616/336-6662

Mr. Lawrence J. Goffney, Jr.
Acting Deputy Assistant
Secretary of Commerce and
Deputy Commissioner of
Patents and Trademarks
Box 4
Washington, D.C. 20231

Re: Rohrabacher H.R. 359/20-Year Term

Dear Larry:

At the AIPLA Spring Meeting, Mr. Nip Litzsinger and David Lowin criticized the 20-year term legislation and supported a return to the 17-year patent term. In particular, they criticized the U.S. PTO's statistics on submarine patents.

I am enclosing herewith photocopies of the abstract page and claims from U.S. Patent No. 3,978,457 and U.S. Patent No. 4,675,841, both of which are owned by Pitney Bowes, Inc. of Stamford, Connecticut. The '457 patent was issued on August 31, 1976, and expired on August 31, 1993. The '841 patent is said to be a division of the '457 patent and issued on June 23, 1987. I am informed by representatives of competitors of Pitney Bowes that the '841 patent prevents effective competition in the electronic postage meter business in the United States.

Whether the '841 patent could be considered to be a "submarine patent," it bears all of the unfortunate aspects of a submarine patent. The effective filing date for the '841 patent is June 10, 1976. This patent will expire on June 23, 2005, more than 30 years after the effective filing date. In all countries of the world, except for the United States, the protection afforded by the '841 patent will more than likely expire no later than December 23, 1995. Thus, Pitney Bowes has a monopoly on the inventions disclosed in the '841 patent for about ten years more in the United States than for any other country! Further, the situation is exacerbated by the fact that protection effectively began on August 31, 1976, the date of issuance of the '457 patent. Thus, monopoly protection in the U.S. effectively extended for almost 30 years. Not bad.

This set of patents makes a very strong case for the 20-year term, regardless of whether one could call the '841 patent a "submarine patent." The '841 patent is not held by an individual but rather by a leader in a not insubstantial commercial market in the

United States. One does not have to be a rocket scientist to figure out how to extend terms of patent protection under the 17-year rule for patent terms.

I trust that you will pass this information along to the appropriate person in your office as appropriate ammunition to oppose the Rohrabacher H.R. 359 patent term bill.

Sincerely yours,

John E. McGarry

JEM/mr
Enclosures
cc: Ms. Melissa Singleton
Mr. Michael K. Kirk
Representative Vernon Ehlers
Mr. Edward Heller
Mr. Larry S. Nixon
(all with enclosures)

United States Patent [19]
Harper et al.

[11] Patent Number: 4,536,516
[45] Date of Patent: Aug. 20, 1985

[54] ALKENE DERIVATIVES

[75] Inventors: Michael J. K. Harper, Ferney-Voltaire, France; Dora N. Richardson; Arthur L. Walpole, deceased, both of Macclesfield, England

[73] Assignee: Imperial Chemical Industries PLC, London, England

[21] Appl. No.: 600,224

[22] Filed: Apr. 17, 1984

Related U.S. Application Data

[63] Continuation of Ser. No. 486,913, Jul. 9, 1974, abandoned, and a continuation of Ser. No. 359,297, Mar. 18, 1982, abandoned, which is a continuation of Ser. No. 918,267, Jun. 22, 1978, abandoned, which is a continuation of Ser. No. 486,774, Jul. 9, 1974, abandoned, which is a continuation-in-part of Ser. No. 262,939, Jun. 15, 1972, abandoned, which is a continuation of Ser. No. 868,667, Oct. 13, 1969, abandoned, which is a continuation of Ser. No. 632,536, Apr. 21, 1967, abandoned, which is a continuation-in-part of Ser. No. 532,891, Mar. 9, 1966, abandoned, and Ser. No. 304,652, Aug. 26, 1973, abandoned, said Ser. No. 486,913, is a continuation-in-part of Ser. No. 262,939.

[30] Foreign Application Priority Data

Sep 13, 1962 [GB] United Kingdom ..... 34989/62
Jul. 20, 1965 [GB] United Kingdom ..... 30755/65

[51] Int. Cl.[3] ..... A61K 31/135; A61K 31/205
[52] U.S. Cl. ..... 514/514; 514/648; 564/324; 260/501.18
[58] Field of Search ..... 564/324; 424/316, 330; 260/501.18

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3,341,537 9/1967 Richardson ..... 564/324 X
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FOREIGN PATENT DOCUMENTS

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1064629 4/1967 United Kingdom ..... 564/324
1099093 1/1968 United Kingdom ..... 564/324

*Primary Examiner*—Robert V. Hines
*Attorney, Agent, or Firm*—Cushman, Darby & Cushman

[57] ABSTRACT

Triphenylalkene derivatives, in particular 1-(p-β-dimethylaminoethyoxyphenyl)-1,2-diphenylbut-1-ene, which possess utility as anti-oestrogens.

6 Claims, No Drawings

Chairman ROHRABACHER. Thank you very much, Mr. Budinger.

Let me note that our distinguished former Chairman of the Science Committee has joined us.

Do you have any opening statement that you would like to make at all, Mr. Brown?

Mr. BROWN. No.

Chairman ROHRABACHER. Mr. Monte, you may proceed.

## STATEMENT OF SALVATORE J. MONTE, PRESIDENT AND CEO, KENRICH PETROCHEMICALS

Mr. MONTE. Mr. Chairman, I am a small businessman, entrepreneur, civil engineer, polymer scientist and inventor. I hold 26 U.S. patents and 220 worldwide patents on organometallic chemicals, and two U.S. patents on Enhanced Energetic Composites and Solid Rocket Fuel currently under military secrecy orders.

In addition, over 1,200 application patents and technical papers have been written using my composition of matter patented chemicals, and 75 percent of them have been issued to Japanese companies.

As President of a specialty chemical company owned by my wife, Erika, who is behind me, who is the Vice President, and me, I invent, research, develop, trademark, write the literature, market, sell and manufacture the products we make in Bayonne, New Jersey and export to the world. I handle the technical side, and Erika, she handles the administrative side.

My invention products are called additives in the language of technical marketing. They are used in a variety of ways to make earth's materials work more efficiently as described in a 340-page book I've written.

This is the book. It's called the Reference Manual. It's really just a summary of what the technology does.

For example, my materials:

—Significantly enhance the picture and sound quality of magnetic recording media used to produce audio and video tape, floppy disks,copier toner and printing ink.

I have examples of a Fuji tape, a TDK tape, a Sony tape and a TDK floppy disk.

—Chemically bond inorganics to organics to make stronger, more advanced aerospace composites such as graphite reinforced epoxy canisters for our Space Shuttle rocket motors.

You see the Space Shuttle back there, and the rocket fuel going into that I'm working on now, and I really think I boost the motors to be five times more powerful in the end.

—Provide a new way to recycle plastics.

—Dramatically reduce the energy required for manufacturing plastics and coatings.

—Produce a new generation of safe munitions and explosives.

For example, LOVA ammunition, and that's low vulnerability ammunition, for the Abrams A-1 tank and the Bradley fighting vehicle.

We currently employ 30 people. In 1990 we employed 90 people before our credit was attacked by a Japanese bank in an attempt to gain control of our patents which were used as loan collateral in asset based lending. This bank is a member of the same

Keiretsu as the chemical bank to which I licensed my patents. If the Japanese bank had been successful, the Japanese chemical company would have owned all of my patents. They weren't.

I had to license my patents in order to do business in Japan. There is just no other way. The government bureaucrats work hand in hand with the corporations to make it impossible to sell chemicals directly in Japan.

My concern with the hearing's charter issues before us today is based on my experiences in 20 years of dealing with the mercantile capitalistic Japanese model.

My written statement details the confusion created by the 1994 changes in U.S. patent law brought about by the TRIPS agreement of the GATT. Before we could operate under Section 301 and sovereign U.S. intellectual property laws. Now we must operate somewhere between our laws and the WTO which is not equipped to handle the intellectual property practices of Japan. That's why Fuji can stonewall Kodak and Ajinomoto can stonewall Kenrich. My case is currently before the USTR and is one of the practices being covered under the current Section 301 review.

Steps such as H.S. 359 must be undertaken to reverse the Japanese tilt in the intellectual property playing field created by the GATT Treaty. The United States Government protects the small inventor. The Japanese patent system works to defeat the small inventor. I have first-hand experience with the predatory tactics of Japan. It has been hell. It was not an experience I would wish on anyone. I have been and still am under assault by corporate Japan to exploit my intellectual property.

We therefore support H.R. 359 for the following reasons:

—From my experience, the Japanese typically stall fundamental patents beyond three years essentially reducing patent coverage below the pre-WTO 17-year term. The average time for a Japanese patent to issue is five to seven years, and the number of patent examiners is purposely kept small to increase the backlog. You end up with 13 to 15 years protection and not 17. And, by the way, the protection is meaningless.

—Laying open patents after 18 months opens the small inventor to patent flooding tactics and challenges from deep-pocketed Japanese industrial cartels.

Japanese companies can take your technology, make minor changes and surround or flood that technology with numerous patents of their own, thus defeating it.

Gentlemen, I'm sure you're aware of it, but of the foreign trade barriers printed for 1995, 40 pages is devoted to Japan patent flooding, and restricted patents is one of the issues. I don't know what they agreed to in 1994, but in 1995 and 1996 our own USTR chronicles exactly what's going on with Japan.

This is exactly what happened to Kenrich. The patent flooding has essentially destroyed my position to compete.

—First-to-file over first-to-invent favors big money over little money and encourages industrial espionage in an electronic age. The moment you give a paper it's out and across the universe.

—Technical societies which thrive on new technology papers are currently hampered because authors will not give papers containing disclosure until their lawyers have all their intellectual prop-

erty assets in place. It used to be that you could disclose to get a marketing edge knowing your lawyer could cover you because you had the right to first-to-invent. I used to have a year, and now I have nothing.

It's really unrealistic to ask a small guy like me to take a universal intellectual property position when just in the EEC alone it costs 35 grand to do a patent filing, to get it translated into all the languages independent of the R&D, the writing of the patent and all the other things you have to carry on in the United States and Southeast Asia to boot.

—"Submarine" patents, although newsworthy and spectacular, represent a negligible percentage of all patents filed. For this it is not worth destroying a system that has made us a strong economic power. The work of an inventor must be protected by a strong patent term.

—Japanese interpretation of the GATT/WTO goal to harmonize is not transparent. They always have another goal. My written statement provides the details of their manipulation of the inventory listing of new chemicals so as not to disclose their newest and most critical high technology chemicals as is required by international laws designed to protect the environment. The fact is only 2 out of the 15 commercial chemicals I licensed to Japan in 1980 are listed, yet that was the very reason used to force a manufacturing license.

I have gone through this four-volume set to try to locate the chemicals that I licensed to Japan for the sole purpose of having them registered in Japan and they're not there. They stonewalled me and they wouldn't even respond to my request as to whether they were listed. The only way I could find out was to pay $1,800 and get this four-volume set and go through every page, and this only became available in March of 1993.

Chairman ROHRABACHER. You mean they weren't operating in good faith?

Mr. MONTE. You're right.

Chairman ROHRABACHER. And wouldn't you think we would have some reason to worry that all of these things they promised they will do they might not?

Mr. MONTE. Well if you read the preamble of this book it sounds like they are just going right down the same road as TASCA. They have harmonized totally with our EPA and our laws as it relates to conforming to disclosure and the right to know, but the fact is all the key stuff isn't in there. All the important stuff isn't in there. All the commodity chemicals are in there because everybody knows about them, but the real stuff, the important stuff, the leading edge stuff, the bleeding edge stuff is not in those books. My stuff isn't in those books.

Chairman ROHRABACHER. Mr. Monte, if you could summarize.

Mr. MONTE. The harmonization created by the drive of multinational businesses to globalize as achieved by the TRIPS agreement does not resolve the conflict created by the less than transparent Japanese way of doing business.

There is a little book here called "The Industrial Groupings of Japan," and when a little guy like me goes against a bunch of Keiretsus and Keiretsu banks it isn't pretty good.

Congressman Bob Menendez has sent a letter to the Honorable Michael Kantor suggesting flagrant violations of my intellectual property rights by Ajinomoto Company in particular through underreporting of sales to avoid paying royalties, infringement of patent rights, withholding pertinent patent information, and generally unfair trade practices which go on today and will continue to go on unless we do something to put some muscle into our USTR and into a lot of stuff we've lost because of the WTO.

On March 11th,1996 the USTR office acknowledged receipt of Congressman Menendez' letter and the "flagrant violations of his intellectual property rights by Ajinomoto Company."

Additional details of my company's capabilities and a chronology of some of the events that almost destroyed my company along with the documentation are appended to my remarks.

Mr. Chairman, I am ready to answer any questions the Committee may have.

Thank you.

Chairman ROHRABACHER. Thank you, Mr. Monte, I appreciate that.

[The prepared statement of Mr. Monte follows:]

SUBCOMMITTEE ON ENERGY AND ENVIRONMENT
COMMITTEE ON SCIENCE
UNITED STATES HOUSE OF REPRESENTATIVES

HEARING CHARTER

MAY 2, 1996
10:00AM - 1:00PM
Room 2318, Rayburn Office Building

CHANGES IN U.S. PATENT POLICY AND THEIR IMPLICATIONS FOR ENERGY AND ENVIRONMENT R AND D

STATEMENT OF SALVATORE J. MONTE, PRESIDENT
KENRICH PETROCHEMICALS, INC.
140 East 22nd Street
Bayonne, New Jersey 07002 USA

Mr. Chairman:

I am a small businessman, entrepreneur, civil engineer, polymer scientist and inventor. I hold 26 U.S. Patents and 220 world-wide patents on organometallic titanate, zirconate and aluminate coupling agents and cumyl phenol derivatives and 2 U.S. Patents on "Enhanced Energetic Components" and "Solid Rocket Fuel" currently under military secrecy orders. In addition, over 1200 application patents and technical papers have been written using my composition of matter patented chemicals--75% of them by Japanese companies.

As President of a specialty chemical company owned by my wife Erika, who is Vice President, and me, I invent, research, develop, trademark, write the literature, market, sell and manufacture the products we make in Bayonne, NJ and export to the world.

I handle the technical side and my wife manages the administrative side.

My invention products are called additives in the parlance of technical marketing to the plastic, rubber, coatings, ink and ceramic industries. They are used in a variety of ways to make earth's materials work more efficiently as described in a 340 page Ken-React Reference Manual I've written.

My materials:

- Significantly enhance the performance of magnetic recording media used to produce audio and video tape, floppy discs, copier toner, magnetic and printing ink.
- Chemically bond inorganics to organics to make stronger, more advanced composites used in aerospace, printed circuit boards, storage and processing tanks, etc.
- Enhance the performance of new generation, environmentally friendly, anticorrosive paints.
- A new process to regenerate recycled plastics where scrap plastic can be made to perform like virgin material using just 2 parts of my additive per 1000 parts of recycled plastics.
- Significantly improve the aging and reduce toxic smoke generation for flame retardant high voltage wire and cable insulation.
- Dramatically reduce the process energy and time requirements for extruding, injection and blow molding plastics and manufacturing coatings.
- Make clear plastic that eliminates the shock you receive when you walk across the carpet to turn on a light switch in a heated room.
- Produce a new generation of munitions and explosives for safe operations of our armed forces.

We currently employ 30 people. In 1990, we employed 90 people before our credit was attacked by a Japanese bank in an attempt to gain control of our patents which were used as loan collateral. This bank is a member of the same Keiretsu as the chemical company to which I licensed my patents. If the Japanese bank had been successful, the Japanese chemical company would have owned all my patents.

I had to license my patents to a Japanese chemical company in order to do business in Japan. Government regulations and red tape make it impossible to sell chemicals directly in Japan. The government bureaucrats work hand in hand with the corporations. There is always one more license to obtain always one more test. Although under Japanese law, you have a perfectly free right to trade, in reality you do not. My concern with the Issues before us today as outlined in Chairman Rohrbacher's Hearing Charter is based on my experiences in 20 years of dealing with the Mercantilist Capitalistic Japanese model as compared to the Free and Fair Trade Capitalistic model practiced by the U.S.

Let me state for the record that steps such as HR 359 must be undertaken by the United States Government to reverse the Japanese tilt in the intellectual property playing field created by the GATT Treaty. The United States Government protects the small inventor. The Japanese patent system works to defeat the small inventor. I have first hand experience with the predatory tactics of Japan. It is not an experience I would wish on any other U.S. small business. I have been and still am under assault by corporate Japan to exploit my intellectual property.

We therefore support HR 359 for the following reasons:

- From my experience, the Japanese typically stall fundamental patents beyond three years essentially reducing patent coverage below the pre-WTO 17 year term. The average time for a Japanese patent to issue is 5-7 years. The number of patent examiners is purposely kept small to increase the backlog.

- Laying open patents after 18 months opens the small inventor to patent flooding tactics and challenges from deep pocketed Japanese industrial cartels.

  I would like to briefly discuss the phenomenon of patent flooding. Patent flooding is the practice where one makes minor and somewhat insignificant changes to a patented invention, in my case it's the chemical structure, in order to avoid the claims of another patent. This practice occurs only in Japan and is made possible solely because of the extremely narrow claim interpretation given by the Japanese Patent Office and the Japanese courts, both in connivance with the Japanese government, particularly MITI. Thus, Japanese companies can take United States technology, make minor changes and surround that technology with numerous patents of their own, claiming that they are not infringing and do not owe license payments under the U.S. technology which they have licensed. This is patent flooding. It is prohibited in every other industrialized country in the world because the patent offices and the courts give broad enough claim interpretation to prevent this unfair practice.

  This is exactly what happened to Kenrich. We licensed our technology to a major Japanese corporation which we were essentially forced to do by Japanese government

practices. This Japanese conglomerate has paid a de minimus royalty over the last fifteen years despite evidence of widespread use of Kenrich's technology by that Japanese corporation and other Japanese corporations. The Japanese claim that they are operating outside of Kenrich's patents and therefore do not owe any money, and are free to use the technology.

In 1993, the United States entered into what is known as the TRIPS Agreement -- Trade Related Aspects of Intellectual Property Rights -- as part of the Uruguay Round Agreements. The TRIPS Agreement was implemented into U.S. law in December 1994 by the Uruguay Round Agreements Act. Article 2 of the TRIPS Agreement specifically provides that each WTO member country, which includes Japan, must abide with all multilateral conventions including the Paris Convention for the Protection of Industrial Property. Further Articles 27 and 28 of the TRIPS Agreement governs the scope of patentable technology and the scope of patent rights. They require each WTO member to extend those rights on a national treatment and most-favored-nation basis. This the Japanese are not doing. Yet, many in the United States government, particularly USTR, argue or fear that if a WTO complaint were brought against Japan for its patent practices, it would fail because the TRIPS Agreement does not specifically cover these prohibited practices. On the other hand, Japan refuses to cooperate in any Section 301 investigation as shown by the current Kodak/Fuji case where the Japanese won't even meet with the United States negotiators, claiming that Section 301 is a per se violation of the WTO agreements. They cannot have it both ways. The United States should bring a WTO case forcing the WTO to either assert jurisdiction and rule on these illegal practices or state that it does not have jurisdiction, thus freeing the United States under the clear terms of the WTO agreements to proceed against the Japanese under Section 301. My case is currently before USTR and is one of the practices being covered under the current Section 301 review.

- First to file over first to invent favors big money over little money and encourages industrial espionage in an electronic age.

- Technical Societies which thrive on new technology papers are currently hampered because authors will not give papers containing disclosure until their lawyers have all their intellectual property assets in place. It used to be that you could disclose to get a marketing edge knowing your lawyer could cover you because you had the right to "first to invent". I used to have a year and now I have nothing.

- Submarine patents, although newsworthy and spectacular, represent a negligible percentage of all patents filed. For this, it is not worth destroying a system that has made us a strong economic power. The work of an inventor must be protected by a strong patent term.

- Japanese interpretation of the GATT/WTO goal to "harmonize" is not transparent. They always have another goal. For example, their handling of the new chemical inventory listing under their LERMCS/ENCS Number System which is cross referenced to our TSCA/CAS Number System appears to not disclose their newest and most

critical high technology chemicals as is required by law. TSCA is an acronym for the U.S. Toxic Substance Control Act which requires that any new chemical introduced into the environment must first have its toxicology and chemical structure be reported to the U.S. EPA as part of a premanufacture notification process. Subsequently, the EPA notifies the American Chemical Society who then enters the chemical structure into its transparent computer system and applies a Chemical Abstract Services or CAS number. Every existing and new chemical and each of its varied derivatives mentioned in a patent or significant technical paper anywhere in the world gets its very own CAS #. LERMCS is an acronym for the Japanese Law Concerning the Examination and Regulation of Manufacture, etc. of Chemical Substances. Japan applies an ENCS number which is an acronym they borrowed from the EEC system which applies an EINECS number - European Inventory Number for Environmentally Controlled Substances. A "harmonized" Japanese ENCS listing was first published in March, 1993 by the Chemical Daily Co., Ltd., Tokyo, Japan cross referencing the Japanese ENCS #'s with the EEC's EINECS #'s and the U.S.' CAS #'s. You must have a CAS # registered under TSCA or you can't sell it in the U.S. Likewise, no EINECS #, no sale into the EEC and supposedly, no ENCS # - no sale in Japan. Only 2 of the 15 chemicals I licensed to Japan in 1980 are ENCS # listed, yet that was the reason used by Ajinomoto to force a manufacturing license.

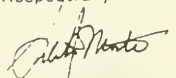
As I see it, the crux of the intellectual property trade issues before us today lies in a need to legislate and manage a basic conflict created by the irreversible drive of multinational businesses to globalization. Globalization creates a need for even small businesses like mine, who must sell in the international arena, to "harmonize". The "harmonization" of the European, Japanese and American patent and trademark systems achieved by the TRIPS Agreement of the GATT/WTO Treaty does not resolve the conflict created by the more transparent trade practices of Europe and America versus my experiences with the less than transparent Japanese mercantile capitalistic way of doing business which is typified by their practice of patent flooding. As it stands right now, American style entrepreneurial inventors like me do not have the resources and muscle to thrive absent protection as was afforded by the pre-WTO intellectual property laws of our own sovereign U.S. Government.

On February 27, 1996, Congressman Robert Menendez sent a letter to the Honorable Michael Kantor, then U.S. Trade Representative and now Secretary of Commerce suggesting flagrant violations of my intellectual property rights by Ajinomoto Co. in particular, through under reporting of sales to avoid paying royalties, infringement of patent rights, withholding pertinent patent information, and generally unfair trade practices. On March 11, 1996, the USTR office acknowledged receipt of Congressman Menendez's letter and the "flagrant violations of his intellectual property rights by Ajinomoto Co."

Additional details of my company's capabilities and a chronology of some of the events that almost destroyed my company along with the documentation are appended to my remarks.

Mr. Chairman I am ready to answer any questions the committee may have.

Respectfully submitted,



Salvatore J. Monte

#0470

# APPENDIX TO STATEMENT OF SALVATORE J. MONTE


| PAGE NO. | ITEM |
|---|---|
| A-1 | • 1996 National Trade Estimate Report on Foreign Trade Barriers, United States Trade Representative - Japan Section (pages 171 to 211). Pages 171 to 173, "Overview" and "1995 in Review"; Pages 186 to 189, "Protection of Intellectual Property Rights" included here. |
| A-11 | • List of Kenrich's U.S. Patents |
| A-12 | • American Chemical Society - CAS Ken-React Search Update Listing of Patents and Technical Papers using Kenrich's patented chemicals - April 21, 1993 to February 29, 1996. |
| A-21 | • Trade Issues Related to Kenrich Petrochemicals Inc. (Bayonne, NJ, U.S.A.) License of Organometallic Technology to Ajinomoto (Tokyo, Japan) |
| A-27 | • Congressional Record - Extension of Remarks - pages E307 and E308 entitled, "International Trade and Patent and Royalty Enforcement" by Hon. Robert Menendez of New Jersey in the House of Representatives, Thursday, March 7, 1996. |
| A-30 | • Congressman Robert Menendez letter dated February 27, 1996 to the Honorable Michael Kantor, USTR. |
| A-31 | • USTR letter dated March 11, 1996 to the Honorable Robert Menendez. |
| A-32 | • February 29, 1996 written statement to the Joint Intelligence - Judiciary Hearing on Economic Espionage conducted by the U.S. Senate on February 28, 1996 with enclosures: |
| A-38 | 1. Congressional Record Speech by former Congresswoman Helen Delich Bentley on October 1, 1990. |
| A-40 | 2. Baltimore Sun Article |
| A-42 | 3. Jersey Journal Article |
| A-43 | 4. New York Times Article |
| A-44 | 5. Remarks for Congressman Menendez |
| A-47 | 6. Kenrich banking arrangement in 1990. |

| PAGE NO. | ITEM |
|---|---|
| A-48 | • April 1, 1996 letter to Ms. Beverly Selby of the Alliance for American Innovation concerning Fuji Photo Film with related and attached (1st two pages only enclosed here) U.S. Patents 4,444,850 issued to Fuji Photo Film Co., U.S. Patent 4,415,630 issued to TDK Electronics Company Limited and U.S. Patent 4,330,600 issued to Sony Corporation all based on the 6 functions of the titanate coupling agent as taught by Salvatore J. Monte of Kenrich. |
| A-65 | • Letter dated May 12, 1995 from the USTR Office to Donald R. Dinan signed by Donald Abelson, Assistant U.S. Trade Representative for Services Investment and Intellectual Property. |
| A-66 | • November 6, 1995 to Donald R. Dinan, Esquire of O'Connor & Hannan describing the Patent Flooding by Tokuyama Soda of Kenrich Technology as licensed to Ajinomoto. |
| A-80 | • January 2, 1996 letter to Donald R. Dinan, Esquire of O'Connor & Hannan related to Patent Flooding by Tokuyama Soda Co., Ltd., Japan and its Ultimate Harmful Effect on Kenrich's Marketing of Products in Taiwan. |
| A-92 | • March 5, 1996 letter to Donald R. Dinan, Esquire of O'Connor & Hannan, RE: Patent Flooding by Mitsui Mining & Smelting - Copier Toners - Magnetic Applications - Magnox Pulaski. |
| A-93 | • June 18, 1982 memo from Ajinomoto Co. Inc. to S.J. Monte and subsequent failing of Ajinomoto to have the licensed products registered according to International Chemical Inventory Listing Standards designed to protect the environment. |
| A-94 to A-118 | • August 1, 1994 letter to Donald R. Dinan, Esquire concerning Draft of a Letter to be sent to Ajinomoto Concerning Chemical Inventory Listing and Draft of August 2nd letter to be sent to Ajinomoto concerning the Chemical/Inventory List - LERMCS (Japan) and KTSCA (S. Korea). |

## BIOGRAPHICAL

NAME: Salvatore J. Monte

BORN: Brooklyn, New York - September 18, 1939

CURRENT POSITION:
President and Owner of
Kenrich Petrochemicals, Inc.

FAMILY: Wife - Erika, Vice President & Owner of Kenrich Petrochemicals, Inc.
Children - Michelle (33-JD, Attorney), Deborah (31-Ph.D. Clinical Psychology), Denise (31-MD, E.N.T. Surgeon), Eric (25-BChE, BA, MS)

OFFICE HELD, AWARDS, OTHER RELEVANT RECOGNITION:
Outstanding Young Man of America - 1970
Licensed Professional Engineer - New York State
Licensed Professional Engineer - New Jersey State
Who's Who in Finance and Industry
Who's Who in the World
Past Chairman of the New York Rubber Group
C. Homer Flynn Award for Technical Excellence (F.S.C.T.)
Chairman-Elect-TPM&F Division of Society of Plastic Engineers

ACADEMIC DEGREE(S), DATE(S) AND COLLEGE(S):
B.C.E. - 1961 - Manhattan College
M.S. - 1969 - Polytechnic Institute of Brooklyn - Polymeric Materials

PUBLICATIONS AND PATENTS:
Co-author of 26 patents issued and filed in U.S. and 22 countries on organometallic coupling agents and cumyl phenol derivatives.
Numerous papers, magazine articles, text book chapters, publications and lecture tours around the world including: Europe, Greece, South America, India, Australia, South Korea and Japan.

PROFESSIONAL SOCIETIES AND MEMBERSHIPS:
Voting Member to SPI
Member of American Defense Preparedness Association
Member of SPE - Board of Directors, TPM&F Division
Member of American Chemical Society
Member of ACS, Division of Rubber Chemistry
Member of New York and various Rubber Groups, Board Advisor
Member of Federation of Societies for Coatings Technology
Member of National Association of Corrosion Engineers
Member of Society of Rheology
Member of Society of Manufacturing Engineers
Member of Rotary - Past President and Board Director
Member - Chi Epsilon, Phi Kappa Theta

HOBBIES:
Tennis, Biking, Reading, Parapsychology and Painting

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Chairman ROHRABACHER. Professor Chandler, you earlier talked about the degree of money that is invested in U.S. research. Now isn't it true that in the United States more money is actually spent in research by the private sector than the government sector, and the changes that we're talking about, you mentioned that even money spent in the government sector for research and development ends up in the hands of non-Americans or foreigners who are using it to compete against us. But wouldn't these changes in the patent law also have an impact on the private sector money that's being invested in research and development?

Mr. CHANDLER. Yes, it would, Mr. Chairman. I think that large American corporations have the ability to protect their own interests and the motivation to do so. So that the resources are there, say in a Ford Motor Company, to properly challenge infringements upon either their research or their investments or their patents.

The difficulty lies in the fact that we have two economies in the United States, a public economy and a private economy. The largest portion of the private economy is in the hands of the largest corporations, well a significant portion is. I think in terms of the production of new jobs, that is generated primarily in the smaller firms in the United States. I think well over 50 percent of all new jobs are generated by small businesses. Some have estimated that number to be up to 70 to 80 percent of new jobs.

But in terms of protecting the investment in new technology, the large companies are significantly able to handle that on their own, and I believe that the risk of injury to large firms by reason of disclosure under the 18-month disclosure is not a factor, and I think that the larger firms favor that. And to the extent that that is beneficial to them, I don't see that as being harmful to our patent system.

I think the risk to our patent system, and this is where I think some compromise in the resolution of this problem is called for, is that universities, major research institutions and government laboratories, primarily government owned and government operated, don't have the resources to defend themselves in the same manner, and yet they are the users and producers of significant quantities of new technology.

For that reason, Mr. Chairman, I believe that we need to look at this particular rule in terms of how it can best benefit the American economy, and it might be that some right on the part of universities and laboratories that do basic research and which would like to not have their discoveries and applications disclosed publicly after 18 months, some provision for that should be written into the law.

But for the companies that are going to feel that they are more competitive by having patents disclosed after 18 months in the United States due to the need to have those applications translated, as we've heard, that is something that the companies should be allowed to obtain.

Smaller inventors, on the other hand, Mr. Chairman, fall in a different category. I believe that the risk that is faced to the economy by 18-month disclosure arises from the hundreds of billions the government spends on basic research and the additional billions spent by small businesses in their research activity, and that

needs protection. There would be a significant injury to the nation's economy if we don't take those steps, and this is primarily operated by the Department of Energy.

Chairman ROHRABACHER. Professor Chandler, if you have a patent term certain of 17 years, which we have had for 134 years, and we exchange it for a period of 20 years from filing and then it runs out, and we don't know how long it will take the patent to issue, do you think that this will significantly affect the amount of money that is invested in research and development in the country?

Mr. CHANDLER. I think so. I think that there are two requirements of any property system, Mr. Chairman, and this includes any form of intellectual property. There has to be some way to pin down the subject matter which is the object of ownership. So that we need to be able to define with clarity and certainty what it is the inventor claims and what it is the inventor owns. We need to understand when that right of ownership begins and we need to understand when that right of ownership ends.

Now the 20-year term purports to provide certainty as to the beginning of the term and the ending of the term, and to some extent the scope of the right. The difficulty is, as you have just observed, that if there is no certainty that the start part will be 17 years or greater, then there is an effective reduction in the value of the right the inventor acquires, because we measure the economic value of the right in terms of the years of duration of the right.

By creating a 20-year term from date of application we create in this country the possibility that an inventor may invent, and the examination process, because it's a fundamental patent, a pioneering patent, may take 15 or 20 years to examine and approve. In such a case the most worthy inventor of all is denied the benefits of their invention.

If you couple that with an 18-month disclosure, it is entirely possible that, as I gave in an earlier example, you would have a hundred applications from a financially well-off competitor that floods the Patent Office, and it's entirely possible that those could issue before the underlying pioneering invention could issue, in which case there is a terrible deleterious effect on making pioneering inventions because you know that you have no assurance that you have a guaranteed term.

So that there is a need to assure the inventor that if you make the investment, that at the end of the day you will reap a benefit. That is the secret of the success of the American system. The continued inspiration of new inventions is essential to the future well-being of the American economy, and you cannot assure that, Mr. Chairman, unless you can assure the patent inventor, particularly of pioneering patents, that they will receive some minimum benefit from the disclosure.

Chairman ROHRABACHER. When you have a situation, and then I'll move on to questions for the rest of the panel, but if you have a situation where an inventor who has little or few resources available, that person under the uncertain system where you have 20 years and you have no idea within that 20 years when the patent will actually issue——

Mr. CHANDLER. Or if it will issue.

Chairman ROHRABACHER. Or if it will issue, as compared to someone in a major corporation or someone of means, if they have exactly the same invention you actually by law are setting up a situation where the value of this to a wealthy man is of more value than it is to a poorer person, isn't that true, meaning that in the end, because he does not have a patent term certain, that the value the society will place on that same invention will be less if the person doesn't have the legal resources to defend it and to get it through the system?

Mr. CHANDLER. Let's put it this way. The economic value is a consequence of the economic circumstance of the inventor, and our system shouldn't be dependent upon the economic circumstance of the inventor, with the more wealthy inventor being able to more effectively defend.

Chairman ROHRABACHER. Right.

Mr. CHANDLER. Mr. Chairman, I would like to say that I listened carefully to the remarks of Roger May, and the problem he identified with respect to what is euphemistically referred to as "submarine" patent is a very serious problem and should be addressed in these legislative reforms so that the problems associated with inventions that were made in 1956, or applications filed in 1956, don't continue to haunt businessmen in 1996. I think some effective end point to the right is as important as some effective start point to the right.

Chairman ROHRABACHER. That's very well said, Professor Chandler, and thank you very much for your participation today.

In listening to the remarks of the panelists I sort of come to the conclusion, and Dr. Chandler's remarks have just sort of focused on this, that we have a choice here it seems, and people are trying to set up what I consider to be a false choice, between applicants who are gaming the system—and, as Mr. May suggested, there is no way to really stop these applicants from gaming the system as long as we have that guaranteed 17-year patent term versus powerful interests who, if we don't have a guaranteed patent term, will be able to game individual Americans, and those powerful interests are not just American interests either. Those are interests that Mr. Monte is having trouble with in Japan, but I'm afraid that now that we've changed our system to be more like Japan that Mr. Monte may find the same troubles that he has had in Japan, and he may end up having those same troubles in the United States and it may be those guys in Japan who were giving him those troubles because we've changed the system now.

We've changed the fundamental nature of the system so that it looks more fundamentally like what the Japanese system looked like before, but of course we do have all those assurances that they will be doing this in the future in a different way, and I think we can really count on Mr. Monte's observations about the good will of the Japanese in fulfilling their basic agreements.

Now what I'm going to do is let Ms. Rivers move forward, and then I'm going to come back with some more questions from the Chairman.

Ms. RIVERS. Thank you, Mr. Chair, and thank you, panel.

I do have a couple of questions, but before I offer them I need to tell you that I listened to everybody's testimony very carefully

because my particular Congressional district sort of looks like this panel. It's like a slice of America and I have not only big companies, I was going to say like Ford, but I have Ford in my district. [Laughter.]

I have high-tech entrepreneurs, I have biotech firms, I have universities and people who specialize in intellectual properties. So the various interests that are at work on this panel are at work in my district, and what that suggests to me is that there is probably not one way or another way that is best, but we probably are moving towards some sort of fusion so that all of those points of views are represented.

The thing that I'm particularly concerned about that was raised by Mr. May, and it has been raised by other constituents of mine, is the issue of "submarine" patenting. Actually "submarine" means one thing and the idea that it can pop up at any point, but I'm more concerned with this telescoping kind of maneuver where the application is written in a way that it's sufficiently adaptable that each and every time a change is made it could in fact encompass new and different kinds of technology that the original patent person may not have had anything to do with, and so that sort of allows for the exploitation of an evolving market, and also allows for entrepreneurs sometimes to be stripped of the work they've done.

That is something that I would be interested in hearing particularly the entrepreneurs speak to in terms of the two bills, and whether either of them adequately addresses this idea of where you've got somebody that can continually change or make modifications to their application and essentially steal ideas from people who are out there working right now.

Mr. Budinger and Mr. Monte in particular.

Mr. BUDINGER. Congressman Rohrabacher I think said it well in that the 20-year term does solve the "submarine" problem. There is no benefit to dragging out applications or stringing them together.

I mean one of the things we often tend to think of is one invention and one patent, and it often doesn't work that way. Often one invention, I do it and if I can I try to figure out how to get multiple patents. And if the 17-year term comes back, I'll try to figure out—because it just makes sense to do it—I'll try to figure out to maybe get one to issue early and then drag the other ones out as long as I can. Even though the term of each patent is only 17, I'm going to interlock them and drag them out.

The 20-year terms kills that for me and I can't do that. Even though I might like to be able to do it personally, I'm very glad my competitors can't do it. So I think that's a good idea.

The problem with the 20-year term is that it doesn't handle the diligent applicant who gets caught in a bureaucratic snafu in the Patent Office, and that happens often enough that I think we need to really fix that.

Ms. RIVERS. So if there was a specific appeal process or some way to specifically address that, would that allay some of your fears?

Mr. BUDINGER. If it were done right, yes, and to be done right it has got to be automatic. It cannot be left up to the PTO to decide whether or not to extend term.

One of the things that's true right now, or was true under the 17-year term, and I guess it's also true under the 20-year term, is that under the 17-year term there is no incentive for either side to expeditiously process the application, because we looked at these applications that sat in the Patent Office for 8 or 10 or 15 years and we don't know why. We can't tell whether it was the applicant's fault, whether it was the PTO's fault. There is no way to know. So there is no incentive on either one.

Under the 20-year term that gets modified, and the modification is the key thing. It's going to have to say right on the face of the application that the term has been extended because the PTO messed up, in effect. So there is a tremendous incentive on their part to be a lot more diligent. But the thing is, that extension has got to be automatic, and there are several proposals that I can live with for modifying that.

Mr. BUDINGER. Mr. Monte.

Mr. MONTE. The way the game is played gets pretty complex. It really depends upon what you're patenting, whether it's a piece of equipment or a chemical, and how that material is used.

As I said in my statement, I make additives. So I don't make anything, but I make other things better. For example, all of these tapes that I show here have my chemical on them, and they are all covered by very extensive U.S. patents, but I don't get any royalties from it. That's one of the problems.

The other problem is we have prophetic patents that allow us to broaden the scope, and we cover not only the specific chemicals we invent, but what could potentially be invented, and we have the ability to prophesize in our U.S. patent, and they are much more extensive in their scope and their intent, while in Japan they're much more restricted, and they haven't changed that system. So the effect is that they get patents on composition of matter additives that are like mine, and then you don't know whether my stuff is on it or their stuff is on it, and if you did challenge them you don't know whether or not you're going to win.

Mr. BUDINGER. Right. What I was particularly concerned about though is where there is a pending application that can be adapted by another inventor to include stuff that you are working on and essentially usurp the value of your research and development and investment.

Mr. MONTE. I haven't run into that because my stuff is pretty fundamental and they're not doing that. They're only playing games over in the other countries where they have the fortress to then come in and bring the parts in here finished anyway.

Mr. BUDINGER. Okay, thank you, Mr. Monte.

Mr. Kirk wanted to speak to that, too.

Mr. KIRK. Thank you. I was going to say that I think that all of us on this panel certainly would agree with Congressman Rohrabacher and others that the system that exists in Japan is not a system that we particularly are enamored with.

We are not here, certainly I'm not here and my association is not here, to defend what goes on in Japan, never have been and never will be, nor China, nor any of the other countries with which we've had continuing trade disputes and will have for a long, long time

to come, and probably our grandchildren will be worrying about these trade disputes.

But that's really not what this whole discussion is about. This discussion is about improvements to the United States patent system, and the fact of the matter is that there is a situation that exists now where patent applications can be telescoped together, as you talk about, under the old law. They could still be telescoped together today, but the problem is the clock is on. So there is not much incentive to telescope now. In fact, there is all the incentive in the world to move it quickly.

In early discussions with people at the Patent and Trademark Office they are beginning to see, as one example of the 20-year term, that applicants are paying their issue fees on average approximately 30 days quicker, and that tells me that applicants do have some control over getting their patents issued more quickly. Now that's preliminary data, and they don't have complete data in terms of turnaround time, et cetera. But certainly the incentive is there to move the application quickly through the office.

There are in H.R. 1733, and in the basic legislation that implemented the TRIPS agreement, provisions that deal with these exceptional circumstances, extensions for successful appeals, extensions for contest as to who was first to make the invention, extensions for the Patent Office delaying the application so that it didn't get out on time, and the attorneys in The American Intellectual Property Law Association represent plaintiffs and defendants. They represent patentees, and the last thing in the world they want is for their applicants to lose term because of some change in the law. We don't believe that's going to happen. We believe the safeguards are there, and that includes in the publication aspects. So there is a safeguard.

The question was raised is there something in 1733 that would protect the independent inventor, the small businessman against having his technology published where they don't file abroad, and the answer is yes, there is. They are guaranteed that their application will not be published until three months after they receive an action on the merits that explains to them the prospects for obtaining a patent. So there are some techniques in the legislation that we believe adequately protect all interests.

Ms. RIVERS. Thank you, Mr. Kirk.

Thank you, Mr. Chair.

Chairman ROHRABACHER. We can just go back and forth for as long as you have some questions and I have some questions.

What we've been told today is that definitely the 20-year term filing concept does solve the "submarine" patent. It's the one way for certain of solving the "submarine" patent problem.

Let me ask Dr. Gardner this question. Dr. Gardner, you at one point worked at the Patent Office?

Ms. GARDNER. Yes, I did.

Chairman ROHRABACHER. And you now work for a company that has patents, and this is a small inventor type innovative company.

During your time at the Patent Office were there a large number of people trying to ensure that their patent wasn't issued, or were most of the people, the vast majority of people, and in fact almost everybody who was before you, weren't they trying to get their pat-

ent issued as soon as possible so they could have money coming in from that patent?

Ms. GARDNER. Let me clarify, first of all, that unless I was granted an honorary degree that I don't know about, I'm not a doctor. I would just like to clarify that for the record.

Chairman ROHRABACHER. Then Ms. Gardner.

Ms. GARDNER. In answer to your question, in the particular part where I examined I don't recall ever having any evidence of anyone trying to prolong examination for that effect, or for any effect.

Chairman ROHRABACHER. And in your current situation do you try to get your patents issued as soon as possible so that you can have them issued for financial reasons or whatever?

Ms. GARDNER. Definitely. For small companies it's extremely important because a lot of companies my size have no products on the market which are generating revenue to begin with. So in order for us to remain viable we need to raise investment capital, and in order to raise investment capital we need to show our investors that we have patents that are secure.

Any time there is a patent application which is still pending, then that raises a question in a potential investor's mind as to whether or we'll actually receive the patent.

Chairman ROHRABACHER. Even as Mr. Kirk said, that there was some classification, and what was it that you have that you just mentioned?

Mr. KIRK. I was speaking about obtaining an office action, and in an office action the examiner will typically indicate to the applicant which of the claims in the application are allowable and which are not allowable and the reasons for that.

Chairman ROHRABACHER. What was the name of that?

Mr. KIRK. First office action. That's the letter that the examiner will send to the applicant making this explanation.

Chairman ROHRABACHER. Is that good enough, Ms. Gardner, to help people raise money, or do you have to usually wait until after the patent is issued for them to have a certain amount of protection?

Ms. GARDNER. For our investment bankers, we really need a little bit more than that, and rightfully so. I mean I think that they would be avoiding their duty to rely on that kind of information.

Chairman ROHRABACHER. So what we have here is a situation where there is a problem. I mean I've certainly never denied that there is a "submarine" patent problem because there are some people who are gaming the system, and there is no doubt about it. You look at it, and this Lemelson person, and I have not met Mr. Lemelson, but I certainly have heard a lot about Mr. Lemelson, seems to be in a situation where he is being charged with having gamed the system and elongated it, but the vast majority of people who want their patents, they want to get them right away, and they want to start making money.

Mr. Monte, is that correct?

Mr. MONTE. That's correct. I mean the whole gaming mentality goes on. I went to Japan in the '70s and lectured like a lamb to slaughter. I really went to teach and educate and spread the gospel of efficient use of materials and got creamed. You know, when you're a scientist you think in scientific terms, you think in rights

and wrongs and absolutes, and when you file patents you really are not gaming the system.

You might do what Mr. Budinger does sometimes and sort of wiggle around, but you don't wiggle too much. You really want to get on with the job of selling your product.

Chairman ROHRABACHER. So the most important aspect for someone who is trying to get a patent is to get that patent issued so you can get it on the market and start making some money?

Mr. MONTE. Oh, sure.

Chairman ROHRABACHER. But there are some other people, like you said, and we'll get back to you, Mr. May, in one moment, that have gamed the system, a certain number, maybe it's one percent or maybe it's, I don't know, and maybe we'll try to get an estimate there, but we're told that that very small proportion was so important that we had to totally change the fundamentals of our system so that a 134 years and all the goods that derived from that guaranteed 17 years patent protection, that wasn't as important as changing that problem of that very small percentage of people who were gaming the system.

And, furthermore, we're being told that there is no other way to attack the "submarine" patent problem except to make that fundamental change.

Now I personally believe that most people who are suggesting that actually are advocates of harmonization of patent law and that's their real purpose, but they're throwing that other argument up. I happen to believe that, but for the sake of these discussions you always have to operate under the assumption that everybody is operating under good will and being upfront about what their motives really are.

But I want to note that I did ask Mr. Lehman weren't there other ways and things that we could do in the Patent Office, and we had the Commissioner here, aren't there other ways to attack the "submarine" patent problem that we could do in the way the Patent Office works that would help solve that very small problem that might have a big implications, but a small problem in terms of numerically the number of people involved.

I do want to add that he didn't answer that question. I gave him every opportunity here. I asked specifically, and he left the meeting without basically having—I mean we'll look back at the record of what he said, but I can tell you having been a reporter I was waiting for the answer to my question, and he didn't answer it.

I've been told over and over again that if the Patent Office can change certain procedures, flagging people, for example, if their patent has been in the process for a long period of time and it seems that there are some problems there, flagging it and sending the patent to another level that's designed specifically to handle people who may be trying to game the system, but we can't do that. Instead we've got to change the whole system.

Mr. May really wants to comment on this. So go right ahead.

Mr. MAY. Well I would like to comment on several things that you've said.

First of all, I would like equal time because I was a patent examiner also for five years.

Chairman ROHRABACHER. And did you run into a lot of people who were trying to game the system?

Mr. MAY. I will respond to that as well. I not only was a patent examiner for five years, but I've been in the practice for 29 years. I was in private practice representing both small and large corporations, and I've been at Ford Motor Company.

I can tell you that in all of my experiences, except at Ford, I have seen examples of various degrees of diligence or lack thereof in the pursuance of patents, and I can't ascribe motives to everyone without knowing exactly what—and I never investigated that—but I can tell you that the vast majority of people are honest and the vast majority are trying to get their patents issued.

But I can also tell you, and I think this is very important, we have seen an increase in the gaming and working of the system in recent years, and success breeds further activities of this type.

I can tell you that there are numerous practitioners throughout this country who were examining before the change in the law the propriety of representing their clients and not gaming the system for fear that they would be accused of malpractice. In fact, we have some practitioners who have gone around the country giving seminars on how to do it.

So to suggest that because in the past we didn't have very much of it and we should ignore the problem, I think is really very, very dangerous. And to suggest that it's a small problem is really a misstatement. We're talking about billions and billions of dollars that will be imposed upon all the citizens of this country if we fail to attack this problem. It's a very large problem, Mr. Chairman.

Chairman ROHRABACHER. But, Mr. May, you also must admit that changing the guaranteed patent term, or eliminating the guaranteed patent term in terms of investment and research and development, I mean we've got venture capitalists coming to us and saying without a guaranteed patent term we're going to have billions and billions of dollars that aren't being invested in research and development at the same time. So there are implications on the other side as well.

Mr. MAY. I would suggest that we not ignore the provisions of 1733 that address that very problem which provide for extensions of that patent term, and I think that's being ignored quite a bit here in this discussion, and that is to take care of those kinds of problems. So I don't believe that people will be denied their patent term.

Chairman ROHRABACHER. Did you have another point? You said you had couple of points you wanted to make.

Mr. MAY. No.

Chairman ROHRABACHER. Let me ask you a couple of questions, and these are going to be very pointed questions because you do represent a major corporation. I appreciate the fact that your company has made its position very clear, but let me ask you about your company then. You represent Ford Motor Company and you're representing the best interests of the shareholders obviously.

Is it fair to say that it is in the interest of your shareholders to pay as little as possible in royalties to inventors?

What we've been presented here with is it seems it's the little guy versus the big guy, and every time I've had a discussion on

this with large numbers of people it always seems that people representing the big companies are in favor of this uncertain patent term that can be backed up by legal situations, and the little guys are all saying, no, no, please, make the patent term certain so we don't have to spend all our money on lawyers.

Isn't it true that the big companies can maximize their benefit here by basically paying as few royalties to inventors as they can possibly get away with?

Mr. MAY. First of all, I think it was Mr. Budinger that pointed out that we keep flipping back and forth between who calls what uncertain, and I will reiterate that I believe that 359 creates uncertainty.

The Ford Motor Company has a policy of ensuring that it takes licenses whenever a legitimate intellectual property right is present and there would be infringement if we moved forward. I'm very proud of that policy. We adhere to it strictly. We have one of the most comprehensive, if not the most comprehensive policy and procedure for dealing with that of any corporation I think anywhere in the world. So we are not adverse to paying royalties when royalties are due.

What we do object to, and we object to strenuously, is paying royalties to someone who didn't make an invention, but wants to come back and extort money from us.

Chairman ROHRABACHER. Like Mr. Lemelson.

Mr. MAY. And others who will come. We spend nearly all of our time defending ourselves. It has been suggested that we gather all these patents and we can go off and impose them on others and hurt the little guy. What we get our patents for is defensive purposes, and we spend most of our time and money defending ourselves against people who would like to get into our deep pockets.

Chairman ROHRABACHER. Now with Mr. Lemelson your complaint is that he kept this secret and the company then moved forward on that technology.

Mr. MAY. You just reminded me of the other point that I wanted to make.

Chairman ROHRABACHER. Go right ahead.

Mr. MAY. That is the question you addressed to Commissioner Lehman about whether the Patent Office couldn't do something about this.

Chairman ROHRABACHER. Correct.

Mr. MAY. And it really ties in with the Lemelson case. I pointed out that he had issued patents. So his disclosure was published, and one might say well if he disclosure was published then you knew what was there and you should have been forewarned.

The point is that if there is no requirement that at sometime certain an inventor has to step forward and say, okay, American public, this is what I claim as my invention, then you're left to guess as to whether at some time 30 or 40 years from now he'll decide to claim something that was hidden in a paragraph somewhere.

Now you asked whether or not the Patent Office couldn't deal with this problem. As an examiner for five years and having worked with the Patent Office my whole career in various capacities from the outside and having seen the resources that we at Ford and also small companies and independent inventors can

apply to a particular invention application, I know that it is absolutely impossible for a patent examiner, no matter how bright they may be, to contest and deal with the machinations that an inventor who has chosen to move down this path can engage in.

Chairman ROHRABACHER. Well that's one patent examiner, but couldn't you haven't reforms in the system. I mean, as I said, you could flag someone and you say this person is obviously trying to elongate the system and he's gaming the system and have that kicked up to a more——

Mr. MAY. I can tell you it's virtually impossible. I can also tell you we could probably help the Patent Office by having Congress not take the money away from the funds that we pay for our fees.

Chairman ROHRABACHER. Well I think that there is certainly an argument to be made there. I voted to keep our gas taxes in dealing with transportation issues, and I think that there is a lot to be said for making sure that money that is collected under certain auspices stay in that area.

I have my personal doubts, and you have more expertise in this area, but I've spoken to a lot of people, including people who work at the Patent Office, who suggest that's just not the case.

You say we're evolving into a system where this problem is more prevalent than it used to be, and probably more prevalent than when Ms. Gardner worked at the Patent Office.

Mr. MAY. She undoubtedly work there after I did.

Chairman ROHRABACHER. Offices evolve, and they should and regulations should evolve to try to handle the system.

But again back to the big guy versus the little guy. You have a complaint against Mr. Lemelson. Don't small guys sometimes have complaints against your company? I mean I seem to remember—and I don't have this here in my notes—but in the back of my mind I have this thing about this windshield wiper going back and forth, and that some company tried to steal this technology and not pay for it, and I don't know if it was your company or not.

Mr. MAY. Well, Dr. Kern[sic?] sued several companies, and Ford was one of them, yes.

Chairman ROHRABACHER. And he won.

Mr. MAY. He did.

Chairman ROHRABACHER. So obviously a jury of his peers, 12 honest and true Americans came to that conclusion.

Mr. MAY. Our system of jurisprudence guarantees that everyone has an opportunity to move forward and make their claim, and I will not ever contend that Ford has always been lily white in everything that he has done, but I will tell you that I do not believe to this day that Ford infringed those patents, but there was a jury that decided that we did.

Chairman ROHRABACHER. Now this guy did not have a "submarine" patent obviously. He's there giving it to everybody saying please use my invention.

Doesn't it make it more likely that companies will say well maybe we can do something, or actually we read about this guy and he's going to have a patent issued to him pretty soon because it was just published that he applied for this patent for windshield wipers that work in a way that would really help sell our cars.

Wouldn't it be more likely then if that's published that Ford Motor Company is going to go and try to prevent his patent from being issued so that it takes longer for it to issue and thus those years are being credited against that 20 years? Is that likely that Ford Motor Company would do that?

Mr. MAY. One of the purposes of the patent system, of course, is to stimulate innovation, and any time that any of us observes a patent and it presents an infringement problem and it's a valid patent, we may choose to go off and use our resources to try to figure out a better way or get a better idea, so to speak, of how to do it differently. Of course that's something that would occur with the 18-month publication as well. It would stimulate innovation.

Chairman ROHRABACHER. Long-term stimulation of innovation means that the people who innovate receive benefit for what they've innovated. That's the basis for the Patent Office. We know that if you protect individual property rights, people do better by their property and it will have more value in our society. That's the basis of American liberty.

If, instead, we have a system where before that property right is acknowledged by the government the big guys, Ford Motor Company or whoever else is tipped off, and Ford Motor Company or Suzuki or whoever it is can step on the little guy so that he doesn't get his just rewards, that does not stimulate innovation.

Mr. MAY. Personally I take issue with that. One of the things that we pride ourselves on at Ford is being thorough enough to investigate what's going on, what the competitors are doing, what everyone is bringing forth, what patents are out there, and advising our clients, as it were, our engineering and scientific groups of ways that they could alternatively avoid infringement legitimately, or perhaps, and this happens very often, instead of spending $40- or $50 or $100 million to develop something that has already been done, identify it and go out and take a license under it. That's the way the system works.

Chairman ROHRABACHER. That's the way it should work.

Mr. MAY. That's the way we use it and that's the way I believe most every company of this size works.

Chairman ROHRABACHER. By the way, I drive a Ford.

Mr. MAY. I'm happy to hear that.

Chairman ROHRABACHER. I have a Probe and it's a great car.

Ms. RIVERS. No, Escort. Escort is made in the 13th District.

[Laughter.]

Chairman ROHRABACHER. And I will have you know that the next car I buy will probably be a Ford because I've been very happy with it.

Mr. MAY. You should know that Mr. Lemelson sold his Ford Explorer and got a Jeep Grand Cherokee.

[Laughter.]

Chairman ROHRABACHER. But back to the basic point that I'm trying to make, and again, I'm not trying to attack your company. What I'm just saying is that the changes that are coming about, that we're talking about that have been put into place, make it more likely that Ford Motor Company will take the windshield wipers from some guy because even if they find that in the long term we may have to go through a court case it's going to be to

our benefit in the long term just to go ahead and try to get this rather than pay this guy his royalties because he's a little guy and maybe he doesn't have the resources to fight us in court. These are decisions that major corporations make, and I'm not saying their amoral, but they're just part of the reality.

If we've changed our system so that now our little guys are going to be faced, not only with Ford Motor Company, but Suzuki and the Honda and the rest of these companies in the world will be able to then say, hey, this guy has got a good idea. In fact, his patent is not even issued because it has been published. This idea has been published before the patent has been issued, and he doesn't have any way of gaining any more from somebody because he hasn't got the patent issued yet.

Mr. MAY. No, that's not true, sir. Under 1733 that's not correct because provisions rights allow him from the date of publication to collect a reasonable royalty.

Chairman ROHRABACHER. If he has the money for lawyers to enforce that right.

Mr. MAY. I might also note that many of the problems that we have today have resulted from suits being brought on a contingent fee basis, and there seems to be no shortage of lawyers willing to advocate the cause.

Chairman ROHRABACHER. Well Mr. Monte wants to say something and then Mr. Kirk wants to say something, and then we'll go back to you.

Ms. RIVERS. And I want to say something.

Mr. MONTE. We've had a case pending on a contingency fee basis now for almost six years, and we're spinning our wheels because the trade laws as currently constituted almost wipe out any license agreement between the United States and Japan prior to 1986. Because of Mitsubishi Solar they've essentially preempted the right to arbitration because what you did in the '70s and '80s and before '86 was to put arbitration clauses into your contract with the understanding that you recourse in Federal Court if the arbitration didn't go through.

Then Mitsubishi Solar came along and the Supreme Court said that you have to abide by the arbitration clause and now you wind up bound by arbitration, and then you go before arbitration, and in our case we spent $63,000 with Arthur Anderson in Tokyo trying to get an audit on the books of Ajinomoto. Forget the fact that they had already sublicensed five other Japanese companies to manufacture. So it didn't really matter, but we had to get something.

Then we submitted that audit, which was really worthless before the Arbitration Panel, the American Arbitration Association, with a view towards getting a judgment on the fact that we were denied the strong clause in our contract on the right to audit, and they ajudged that based on the arguments presented, and since it was based on Japanese books, that the case would have to be reviewed before the Japanese Arbitration Association.

So here I am with a situation where I'm not protected by any laws, and the only law that possibly is out there is Section 301, and that's subservient now to WTO, or isn't it. So where is my technology? Everybody is making money on it except me.

Chairman ROHRABACHER. Mr. Monte, thank you.

Mr. Kirk has a comment, and then we'll go to Ms. Rivers and let her proceed.

Mr. KIRK. Thank you, Mr. Chairman.

I wanted to make a couple of comments based on the discussion that we were having dealing with this question of the WTO and whether or not we have effective ways to pursue protecting American intellectual property rights.

I would only comment that the Trade Representative has brought an action against Japan for the retroactive protection of American sound recordings to give American sound recordings the full 50 years as is required under the TRIPS agreement, and the Japanese Government has agreed to the 50 years. The question that they are now debating is the question of selling off existing stock. But that complaint has been yielding some very promising results.

Secondly, I would say with respect to the problem that keeps being raised of all these large companies around the globe coming in to attack patent applications that are published at 18 months owned by small companies or individual inventors, there is nothing in 1733 that allows pre-grant opposition. There is nothing there, and I can assure you that my Association would have no difficulty with putting something in the actual statute that would preclude that. So let them submit anything they want to and it goes either in the file or in the trash can.

Chairman ROHRABACHER. Is there anything about submitting prior art?

Mr. KIRK. There is nothing about submitting prior art in 1733. That is in the re-examination bill, 1732, but that's after the patent issues. That's a different matter. But in the publication there is no opposition provided there.

Chairman ROHRABACHER. So 1732 just deals with prior art after the patent is granted.

Mr. KIRK. After the patent is granted, that's correct, sir.

Thirdly, with respect to this question about the growing problem of continuing applications that Mr. May mentioned, in the last seven years of the old law the number of continuing applications went up by 30 percent—a 30 percent increase in continuing applications. That to me is an alarming rise in the number.

Chairman ROHRABACHER. Doesn't that suggest that if there is an alarming rise like you're suggesting, that the Patent Office should change its procedures instead of just trying to eliminate the fundamental rules of the game?

Mr. KIRK. I think, first of all, the Patent Office could not stop the continuing applications without a change in the law to begin with, and with respect to this issue of what the best way to stop this inappropriate manipulation of the system is, there have been numerous studies of this over the past 30 years, and all I can say is that everybody has come down on the side of saying the best way to deal with this is to have a 20-year term with 18-month publication.

Chairman ROHRABACHER. There is a system called the Patent Application Locating and Monitoring System.

Mr. KIRK. PALMS, yes.

Chairman ROHRABACHER. If "submarine" patents are beginning to become a major problem instead of a smaller problem, why can't

the system be used to flag offenders and then have those offenders be put in a special category, or potential offenders just to make sure they're looked at. If the goal is harmonization with Japan and these others, then I understand why you have to change the 17 years from issuance, but if your goal is to handle the "submarine" patent why can't you just have the PALMS system flag it and then have those particular patents be looked at and be placed in a special category?

Mr. KIRK. I think there are a number of reasons of why that would not be effective. It is my understanding, first of all, that the PALMS system doesn't even go back as far as the filing date of the patents that Mr. May just got concerned with. So they will obviously not be captured.

Secondly, I don't know that the PALMS system necessarily captures the parents, that is the earlier filed applications, or whether they are merely monitoring existing applications.

And, thirdly, even if we had a perfect PALMS system that went back and measured one and said this is taking longer, there are certain fundamental due process rights that I don't think we would want to take away from any applicant, large or small. So I think that you have a basic problem there of you can't just automatically assume that because somebody chose to do something that he is necessarily bad or good and just cut off his rights. It can't be that arbitrary, sir.

Chairman ROHRABACHER. Well, it seems to me that you could set up a procedure at least that would make that determination rather than have a wholesale violation of the rights of every American citizen to have a change in the guaranteed patent rights that he has had for 134 years.

I mean what we have now, or the proposal that we've seen put in place now, basically takes away what someone used to have, which he knew no matter how long it took at the Patent Office or no matter how many people tried to delay his patent issue, they always knew at the end of that process they would have 17 years to recoup. That was a right. That's what is called a right, and that right no longer exists.

Ms. Rivers, go ahead.

Mr. KIRK. Could I respond?

Chairman ROHRABACHER. Sure, go right ahead, and then, Ms. Rivers, we'll let you have the last word.

Mr. KIRK. Thank you. I apologize, but I would simply say that the majority of applicants under the new 20-year-from-filing term are getting longer terms, and the early evidence is that applicants are beginning to take steps to even increase those terms further, and with the provisions for extension in the four categories, three existing and one added by 1733, I think you're going to see applicants being able to get more than 17-years-from-grant patent protection.

The last comment I will make on this, sir, and I will be quick, is with respect to the question you asked me on publication and getting a first office action.

The purpose for getting a first office action was not to go out and get venture capital. That's a different animal. One would want to

have a patent in their hand, or be very certain of getting a patent, before you sought venture capital, there is no question about that.

The purpose of the first office action prior to publication was to give the inventor some indication of whether or not they would likely receive a patent so they could make an informed judgment of whether to go ahead with the patenting process and have their application published or abandon the application and attempt to practice their invention as a trade secret, and in some cases today the applicant is going to receive not one, but two office actions and be very well informed.

Thank you.

Mr. BUDINGER. Can I make a short small business perspective on this?

Chairman ROHRABACHER. I will let you do that, but let's let Ms. Rivers go first.

Ms. RIVERS. And I may give you a chance on that.

Thank you, Mr. Chair.

I want to go back to something that I said when I started, which is I believe that ultimately the law in this area is going to have to be a respecter of all of the interests that are sitting at this table. There is no way that we should be creating a big guy versus little guy, or this guy versus that guy kind of legislation. As a matter of fact, I think that is one of the things that has dogged the 104th Congress, that invariably we have had winners and losers around our legislation, and I think that we should be moving away from that instead of toward it.

I have no particular ax to grind in terms of one bill versus another. I know it's a fairly novel thing, but I've come here to actually hear from you folks in the hopes of having an informed decision a little later on. But there are some things that I think I need to inject and to question.

One is something that was raised by the Chairman about the big guy versus the little guy relative to large companies. I represent 29,000 UAW members, not all who work for Ford, but many who work for other companies, but the ability of an automobile industry, particularly an American automobile company to protect innovation and move that innovation to the marketplace is not just about money in the pockets of shareholders. It's about jobs, because if people can be building cars that are innovative and attractive to the public at large that means the jobs continue. So I don't think that in all cases we're talking about somehow huge, monolithic companies versus small entities and somehow the tilt is unfair.

I also represent a tremendous number of individual entrepreneurs. We have a very strong high-tech industry in the 13th Congressional District, and I deal with people all the time that are struggling with these same sorts of things. That's why it's sufficiently clear to me that we have to have some sort of fused proposal here that is going to be adaptable to all situations.

I want to ask about the publication issue because I think this is an important one in this debate because I have heard about it from both perspectives. I have heard about it as publication having the potential of some unscrupulous person in the marketplace stealing the idea, exploiting it and unfairly profiting from it, and I have also heard of situations where small companies in particular invest all

their time, all their money and all their energy into developing something that they are not going to have exclusivity on because in fact somebody else has already done sufficient work to have a corner on that.

So I see the publication issue from two sides, and I would be interested in hearing frankly from all of you, and since I have lots of time given the amount of time that the Chairman used, I feel comfortable in asking all of you to answer because I think this is an area that will be sufficiently important in this debate.

Professor Chandler.

Mr. CHANDLER. Thank you, Ms. Rivers.

The question on the 18-month publication, first we should ask who will benefit if we make an 18-month disclosure. We start with the proposition that we're producing 10 times more than any other nation in the form of intellectual property.

Other nations benefit when they have access to the technology that we're creating. Our Patent Office requires you to teach how to make and use the invention. So when you file a patent application and it's ultimately issued that is a resource available. That's access.

We had technology stored in our national laboratories that was not accessible. We made the Technology Transfer Act, and then that resource become accessible to foreigners, and we now know that there are large numbers in our laboratories.

When we go to 18-month disclosure, at the present time if you file a patent application it is held secret. It is held secret until it is ultimately granted, and if it's not granted it is returned to the applicant. If we go to 18-month disclosure we have now made available a huge reservoir of technology that heretofore has not been available to any other nation.

Ms. RIVERS. So you would say then that the fair warning aspect is very much overridden by the potential loss of the technology by publication.

Mr. CHANDLER. Well what it does is force the applicant out of the invention process, and that's deleterious to the applicant. They want a patent. They don't want to be forced out of the process, and they're forced to protect their invention by trade secret, and you can't profit from selling a computer program if you can't get a patent on it because you have to disclose it, and once you disclose your invention you lose it.

Ms. RIVERS. Thank you.

Mr. Kirk.

Mr. KIRK. Thank you, Ms. Rivers.

I would say a couple of things on the early publication.

No. 1, you do have this question of warning that somebody else is working in the field and they're there first, and it certainly is our impression that this is a lot more important for the independent inventor or small businessman because their resources are considerably less than the large, well-funded, multinationals.

Secondly, I think this whole notion of trade secrecy is considerably overblown when you consider the large number of applications that go from the U.S. abroad that are published, the large number of publications that come out of universities on technology for which they have filed patent applications, and the disclosure of the

workings of an invention when it is sold or placed in the market on which there may be a pending application and it is public disclosed. You're not going to sell, for example, a computer with or without a patent without disclosing everything. So if you can get a patent you should, and if you can't then you need to question whether you want to make the investment.

I would also add a second thought about the publication though, and that is that it will assist the Patent and Trademark Office in providing a better examination process. By having the applications published and placed in the examiner's files and made available at an earlier stage, then this means that when they do their job they will see more of the relevant technology before they finish. So they will be able to do a more thorough and complete job and the patent that is issuing will have a greater prospect of being ultimately found to be valid when it is tested in court. So there is another aspect to that as well.

Thank you.

Ms. RIVERS. Thank you.

Ms. Gardner.

Ms. GARDNER. I have three points I would like to make on this subject.

The first point I would like to make is the inequity of the situation. A lot of people have pointed out that—[Buzzers sound.]

I can continue?

Chairman ROHRABACHER. Yes.

A lot of people have pointed out that most inventors file their applications abroad, and so publication wouldn't make any difference anyway.

But what I'm most concerned about is for those handful of inventors relative to everyone else who is filing abroad that they are losing that kind of protection they otherwise would have had, and I feel that they are in the most delicate situation and they really should be afforded the opportunity to keep their inventions as trade secrets if they so choose. If they couldn't afford to foreign file or if they otherwise chose not to foreign file I think they need the most protection.

The second point is that early publication affords a bigger competitor the opportunity to work on a second generation product and actually have it to market before a small inventor is able to get their patent issued on their core technology which they're going to need before they can rustle up some venture capital to go forward with the development of their product and bring it to market.

So they're looking at a potential situation where by the time they actually could have been able to come to market with their core technology they've already got competition with a second generation product. So they're never going to see the fruits of their labors for having invented that core.

The third point is early publication will always give a larger competitor the opportunity to attack in whatever way possible, and an example of this is something I'm going through right now, and that is if they have anything that could be seen as a basis for instituting an interference type situation they will go ahead and invoke that interference.

I'm in a situation right now where we're in an interference. We're quite positive that we could win on the merits of our case, but we don't have the resources to go forward, and our competitor knows that. And they know that if we could go forward that we would probably win, but we don't have the money to spend, a quarter of a million or a half a million dollars to go forward into this interference situation. So it does give the other person that opportunity to have a heads-up on how they can attack your patent.

Ms. RIVERS. Thank you.

Mr. May.

Mr. MAY. Well, I've said before that I believe that early publication reduces wasteful duplication of research and development. I believe that it drives the development process as efforts are made to try to improve upon what is being done, and I believe that is a significant goal of the patent system.

It also would reduce costly litigation which is becoming a very large problem. We talk about not having funds to go forward. It's rare to find any company or individual that has the funds to go forward with litigation these days given the amount that it costs. So I think the opportunity to resolve conflicts in advance, to engage in redesign, and to go and license technology before a dispute develops is important.

We're living more and more in a global economy and we cannot deny it, and I think it applies to not just multinational corporations, but small corporations as well. We'll find more and more that they are seeking patent coverage overseas, and when they do that they're subject to 18-month publication. By denying ourselves 18-month publication we deny this information, the cache of information that the foreign companies have.

Ms. RIVERS. Thank you.

Mr. Budinger.

Mr. BUDINGER. I'm going to agree with Ms. Gardner in that it looks like we can have the best of both worlds. The 80 percent of the patents that are issued to the big guys, let's publish them, that will make all of us happy, and let's not publish the patents that are issued to the little guys, and that will make those of us who are concerned about that happy. It seems like an elegant compromise and one that I think most, if not all the parties, at interest would agree to.

Ms. RIVERS. Thank you.

Mr. Monte.

Mr. MONTE. The secrecy issue for me is simply a question of resources. I would prefer the secrecy because then I can defend myself and nobody knows what I'm doing. Once they know what I'm doing, sometimes when we come to the close of the week we'll have maybe $10,000 in the bank with a cash flow out there of a couple hundred thousand. So we can't take big shocks like, okay, we'll take them on for about a half a million. We just can't do it.

Ms. RIVERS. Thank you, and I would thank all the panelists.

Those are the end of my questions.

I have one comment that I would like to get on the record, and that is in listening to the Chairman question Mr. May very carefully about the motivations and behavior of Ford Motor Company relative to this debate I hope that we're going to retain that serious

questioning of business interests when we deal with environmental issues because in the past we seem not to have had the same sort of vigor for questioning the motives of business people who are testifying on issues like global warning and CFCs and a variety of other things.

Thank you.

Chairman ROHRABACHER. You've always been free to ask those questions in any way you would want. I just think it's natural that you would want to question a businessman about the profit motive and what he thinks is going to maximize his profits. But I will expect to hear you questioning very thoroughly these witnesses that we have from business and you are welcome to be as aggressive as you would like. In fact, I have learned to expect that.

What we're going to do is I would just like to give each one of you one minute to make a comment if there is a point that you thought needed to be made, just give each one of you one minute to do that, and then I will close with a closing statement as is the Chairman's prerogative.

Let's start at this end, Mr. Monte.

Mr. MONTE. My observation of the Commissioner Lehman's remarks is that I think he's well intentioned, but I just think he should be more cynical. I think he should be more cynical about the way it really works. If you understand how it really works and if you come down from policy decision-making and just examine the way it really works, then maybe he would approach it in a more realistic way. I don't know what that is, and certainly his goals are admirable, but, boy, he just should be more cynical.

Chairman ROHRABACHER. Well thank you, Mr. Monte.

Mr. Budinger.

Mr. BUDINGER. I would like to comment on your question about "submarine" patents and can't the PTO do something about it. When I heard you ask that question the hair on the back of my neck went up because I have enough trouble right now with our arbitrary and capricious patent examiners, and sorry, Mike, but I don't want to do anything more. I would hate to see anything happen to give them more power.

Chairman ROHRABACHER. Well my idea of course is basically to flag people who would be put into a category where it's obvious they're trying to elongate the system, and those people would be treated a little bit differently than everybody else.

Mr. BUDINGER. But, you know, we're not stupid, and I think a lot of folks who would want to game the system would do it in such a way that it's not so obvious, and the thing that comes up is a lot of the techniques that the gamers would use, and these aren't necessarily bad people, these are people doing what makes commercial sense, as what you've talked about with the profit motive. If we have the 17-year system the profit motive demands in many cases that you do this telescoping and dragged out thing.

So if we have in place a system where the incentive is to do that, we're going to have to put in place a lot of rules and regulations to keep people from following the incentive, and that sounds like big government to me, and that's why I like the elegance of the 20-year system.

But I agree with you totally, we need to modify it to make sure that the diligent inventor always gets a guaranteed 17-year term.

Chairman ROHRABACHER. Mr. May.

Mr. MAY. Thank you, Mr. Chairman.

Chairman ROHRABACHER. You can tell all about Ford cars being great, and I'll agree with you.

Mr. MAY. No. I think I'll just take this opportunity to——

Chairman ROHRABACHER. In fact, I want you to know, not only do I drive a Probe and am I going to buy a Taurus——

Mr. MAY. Good choice.

Chairman ROHRABACHER. But my Administrative Assistant who bought a Probe just recently bought another Probe, did you not?

STAFF. No. It was a Dodge.

Chairman ROHRABACHER. Oh, it was a Dodge, I'm sorry. Excuse me.

[Laughter.]

Mr. MAY. You built me up and let me down. I do appreciate that.

I do appreciate also the opportunity to make one last comment to clarify our motives in being here today. It should be very clear after one has spent the kind of money that we've spent under threat that we were under that we are sincere in our desire to correct what we consider to be a very serious problem in the patent system if we go back to the old system.

I would also say, however, that we're a multinational corporation and we are interested in harmonization of patent laws around the world, and that should come as no surprise to anyone. It's in the best interests of corporations in the United States, I believe individuals, and small and large corporations. It's in our interest to expand our economy and be able to market our products effectively around the world and to protect them, and I believe that harmonization is something that must come and will come.

Chairman ROHRABACHER. Thank you.

Ms. Gardner.

Ms. GARDNER. My final comment is centered around my main concern that the way the processes are moving forward, we're making it all but impossible for a small inventor to compete in this climate, and I feel that over the years the sole inventor has become all but extinct because they can have the brightest idea in the world, but unless they can cough up several thousand dollars to file even domestically they don't have a chance.

I think that the patent system is very prejudiced towards the larger inventors, and that there are no benefits, other than a decreased filing rate, for the small inventor. I think that a compromise or some form of compromise between all of the interests here is possible, and I would urge it, but I think it would have to be centered around keeping everything equitable for all parties. And I don't feel that a small inventor or a sole inventor right now is on the same foot as the larger inventors.

Chairman ROHRABACHER. Thank you.

Mr. Kirk.

Mr. KIRK. Thank you, Mr. Chairman.

I would like to reiterate a comment that Commissioner Lehman made, which is I think that all of us have the same goals, and we disagree on the methods of achieving those goals.

We've heard a lot of talk about many things that this hearing is not about, which is the unfairness of the Japanese trading system and the difficulties of the United States Government publishing the results of its billions of dollars of research so that any nation in the world can take advantage of that when they don't publish their research for us to take advantage of here. There are a lot of inequities of that type which have nothing to do with what we're here about.

We believe that the proposals in H.R. 1733, however, do properly protect the diligent patent applicant and ensure that he will get at least 17 years, and usually longer, and we would support it.

Thank you.

Chairman ROHRABACHER. Thank you.

Professor Chandler.

Mr. CHANDLER. Mr. Chairman, I just respectfully disagree with Mr. Kirk. The 20-year term that has been enacted into law does not have a start point for the patent right. It simply creates an ability to pursue it.

The prior law set a certain term. It said you will have 17 years and the starting point will be when the Patent Office issues the patent. It set a certain end point. It will last for 17 years and it will be over and done with 17 years after the patent is issued.

There is a flaw in the change of the law. There is a grand mistake in the change in the law. It doesn't set a start point. The Patent Office knows that. Everybody says it doesn't have a start point, but if things go as they usually do and you don't get a patent in your 20 years we'll grant you an extension of five years under five conditions. That's not good enough. That guarantees nothing and it assures nothing to the investor.

There is a problem with the 20-year term. It doesn't have a starting point for the creation of the right, and you may never get a right.

The only question is how do you cure the problem. Do you cure it by granting the discretion to the Patent Commissioner to extend the term for five years so at least you get five more years? It may take you that long in EPA or in the drug approval department, FDA, and you may never get to practice your art.

You couple that with the 18-month disclosure and you destroy the small inventor. You destroy the universities and you destroy the national government laboratories. The large corporations have the resources and the ability to protect themselves at this time.

Now I would suggest, Mr. Chairman, that that problem has to be cured. The cure may not be restoring 17 years for all purposes because the 17-year term as it was applied before had an opening for continuation of the process for an indefinite period of time. But the fault for the continuation does not lie with the inventors alone. It lies with incompetence in the Patent Office, it lies with deleterious behavior in the Patent Office and it lies with all of the problems individuals have in this country with administrative agencies. It's not perfect, nor is the training adequate, nor is the knowledge in the subject matter of patent law sufficient there, nor is the knowledge in the technology sufficient there to make the kinds of judgments in responsibilities that are now being imposed upon it.

What these proposed changes in the law will do is not lighten the burdens of the patent examiner, they will exalt them. They will convert the patent examiner, not only to a person who examines the patent for sufficiency to qualify for a patent, but a quasi-adjudicatory person weighing disputes and claims and counterclaims from competing parties. There is no competence in the Patent Office to perform that function. To repose that function in the Patent Office is to destroy the existing system further.

I suggest the only solution is to provide a fixed starting point for the small inventors and for the universities and for the national laboratories, and the only way to do that may be your bill of a 17-year term as an alternate to the 20-year term. That would give an individual both options.

But under 17-year term, if we go that route, it's essential that the Lemelson kind of situation where any person who through deleterious and mischievous motives seeks to prolong the process for half a century, that was never contemplated and it should never be tolerated.

And I would suggest further, Mr. Chairman, that before we move to an 18-month disclosure as a general proposition we must simply be sure that we haven't opened this door too wide to foreign access.

You asked a question earlier of the Patent Commissioner, how much can we rely upon the agreement of the Japanese. Most of us know that the Japanese made an agreement with the Federal Government, the Defense Department, to gain access to highly classified materials, and we also know that that agreement was promptly violated under the most grievous kind of circumstances, and that has led us to the conclusion that we must be skeptical in going forward on the faith that our trading partners will honor to the letter any agreement they make with us.

So I urge this Committee to proceed with caution and I urge the Chairman to persevere.

Chairman ROHRABACHER. Thank you very much.

Taking the Chairman's prerogative, I'm going to summarize my own thoughts about the hearing and then we'll close up.

Being a Professor, Professor Chandler, you went on a little bit too long, but that's okay. I agreed with everything you said.

[Laughter.]

But that's what happens when you have Professors and you have to remember that.

Let me just close by saying that I'm a little bit dismayed by some of the events that have happened. By the way, I have enjoyed this hearing tremendously and thank each and every one of you, and I thank Commissioner Lehman again for coming down. I think it took a great of courage for him to come to a Committee that I was Chairing. Obviously I'm his chief adversary on this issue, and I appreciated that he came down himself. He didn't have to do that.

I am a little bit dismayed, or more than a little bit dismayed. I am dismayed by what I see, and perhaps it's too much idealism. I wouldn't say people need to be cynical, Mr. Monte. I wouldn't say that. I think cynicism is a negative force. But perhaps people have to learn to be a little bit more idealistic about what America is all about and how we Americans have achieved what we've achieved.

People take for granted a lot of things, and they usually take for granted things that are just the most in abundance around them. You know we live in a society where there is injustice, and we can fight that injustice, and where there is hunger we can reach out and help feed people, and where people are unhappy we can reach out and try to help them, or if they're sick we can try to help them. We live in a society where freedom is in abundance because we are free to do these things.

We sometimes take the things that are most in abundance like, for example, we may have a wonderful family, and you take the love of your family just for granted because it's there every day.

I'm a surfer, everybody knows I'm a surfer, and you look out at the sunset and it's the most beautiful thing that God ever created on this planet, and it's something people pass up almost every day and they don't see it. I mean if it happened once a year, people would be worshiping that day and say what a wonderful gift God has given us.

Well a lot of the things that we've enjoyed here, a lot of our prosperity and a lot of the goodness of America is not just something we can take for granted. It has been based on the fundamental structure of our system.

Our Founding Fathers understood human nature. Talk about being blessed, we were blessed with people who weren't cynics, but had idealism and realism at the heart of why they wanted to create the United States of America, and they created a system of law, and in that law they went out of their way to create the Patent Office right in the fundamental legislation of our country, in the Constitution because they knew how important technology and freedom was to our future.

You cannot change the fundamental structure that we've enjoyed for 134 years and think that we can then analyze the way things will be based on, as Professor Chandler just suggested, as the way things usually happen, because once you have changed that fundamental different things are going to start to happen.

There is a reason why in Japan the average citizen is downtrodden by these powerful interest groups, especially in the areas of technology and especially in the areas of the development of their society. It's because the law was structured in a way that permitted that type of system to develop where the little guy, the average person gets beat up by these monopolies and these powerful societal groups in Japan.

We have harmonized our law now with Japan. That's basically what has happened. Now whatever we have to say about the "submarine" patent, I've always said that I would be willing to work with anybody to try to cure that problem, and it is a problem. But when we changed the fundamental nature of our law in order to handle this emerging problem, we cannot expect that everything else will stay the same. We can expect that the problems that experienced in Japan will begin to be experienced here, whether we're talking about flooding or we're talking about corporations.

You know, Mr. May is not Ford Motor Corporation. He's an individual who happens to work for Ford Motor Corporation, and I'm sure that if he was hired by someone else he would be as great an

advocate and as strong an advocate for their interests as he is for Ford Motor Company right now.

But the fact is we are now putting in place a new set of rules that will result in Mr. May's using his talents in a way that will create a reality that the people of Japan do not like. Japan may have a superficial democratic government, but that is not a society where the individual has the rights and the freedom that we've had in this country.

And you turn around and the next thing we hear is that the Patent Office, the same people who were advocating that fundamental change and think that it's not going to result in all these other changes that I see down the line, are now advocating that we give our entire database at the PTO to the Chinese.

Now if anybody knows about what I'm doing with my career in the Congress, they know that, No. 1, I'm fighting for patent rights and, No. 2, I'm involved with the International Relations Committee in an effort to try to come to grips with what I consider to be the greatest threat to America, to the peace of the world, and that is China. We may end up in a war with China in the next 10 years if something isn't done to change the direction of what is happening. These are vital questions to the future of every American.

To give the database of the PTO to the Chinese who are a regime that already is involved with a massive violation and thievery of American intellectual property rights is beyond comprehension, and the same people who are advocating that we make that fundamental change in our law are the same ones that basically are in favor of giving this to the Chinese so they will know what not to steal.

I'm going to close with this. I'm not questioning people's motives. There is nobody in here who wants to help the Red Chinese. Ford Motor Company doesn't want to make a profit at the expense of blood and repression. That's not what it's all about.

But we have a group of idealists who are trying to create a new world order. They have this globalist concept, and it's not just Republicans and it's not just Democrats, a globalist concept that we're going to have this wonderful world and they're going to help create it and they're going to move forward on it as if the potential exists for it already.

Mr. MONTE. You sound cynical.

Chairman ROHRABACHER. Well I don't have any disagreement with the idea of trying to create the potential for a new wonderful world and for globalism, but if we try to move forward before the foundation is laid, we are going to destroy the prosperity and the freedom of our own people, and in the end it will not serve the people of the world well.

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To give the Chinese dictatorship, who was already stealing these things from us, the entire database of the Patent Office will lead to horrible things. This change that we're making now, where we've had rights for 134 years, I know that it's well motivated in trying to create a harmonization of world law, but it is going to serve our country very poorly.

I'll be happy to talk to you folks afterwards, but I was the Chairman so I did have the right to close.

Thank you very much. This hearing is adjourned.

[The Committee adjourned at 1:50 p.m., subject to the call of the Chair.]

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ISBN 0-16-053617-0